

REVIEW OF ENVIRONMENTAL FACTORS

**GOVERNOR MACQUARIE DRIVE UPGRADE
ALFRED ROAD TO CHILDS ROAD
CHIPPING NORTON**

DATE: May 2023

Document Control Sheet

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A	Early Draft to Council	16/02/2023	BSA	Council
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Limitations Statement

This report has been prepared in accordance with and for the purposes outlined in the scope of services agreed between ADW Johnson Pty Ltd and the Client. It has been prepared based on the information supplied by the Client, as well as investigation undertaken by ADW Johnson and the sub-consultants engaged by the Client for the project.

Unless otherwise specified in this report, information and advice received from external parties during the course of this project was not independently verified. However, any such information was, in our opinion, deemed to be current and relevant prior to its use. Whilst all reasonable skill, diligence and care have been taken to provide accurate information and appropriate recommendations, it is not warranted or guaranteed and no responsibility or liability for any information, opinion or commentary contained herein or for any consequences of its use will be accepted by ADW Johnson or by any person involved in the preparation of this assessment and report.

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The Client should be aware that this report does not guarantee the approval of any application by any Council, Government agency or any other regulatory authority.

Executive Summary

Liverpool City Council (Council) have commissioned ADW Johnson (ADWJ) to undertake this Review of Environmental Factors (REF) to investigate any potential environmental impacts associated with the construction and operation of upgrades to Governor Macquarie Drive section from Alfred Road to Childs Road in Chipping Norton.

The proposed upgrade works will be undertaken by Council and as such, Section 2.109 of *State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP(T&I))* provides that they can be carried out without consent. This REF has therefore been prepared in accordance with Sections 5.5 and 5.7 of the *Environmental Planning Assessment Act 1979 (EP&A Act)*, which requires Council, as a self-determining authority, to fully consider the potential impacts of any proposed activities. This REF has also been prepared in accordance with Section 171 of the *Environmental Planning and Assessment Regulations 2021 (EP&A Regs)* which details elements to be considered when assessing the potential impact of an activity on the environment.

Having assessed the full suite of environmental issues that may be impacted by the proposal, key environmental risks identified were generally construction-based impacts such as traffic, soil and water degradation, noise and vibration. Given the nature of activity, there were no significant operational risks identified.

Where potential environmental impacts have been identified, mitigation measures have been developed to minimise or remove the extent of impact. These mitigation measures would be further detailed in a Construction Environmental Management Plan (CEMP). Methods for implementing and monitoring these measures would be included in these plans.

Subject to the implementation of identified mitigation measures, it is considered that the construction and operation of the proposed infrastructure works are unlikely to significantly impact on the environment. With this in mind, an Environmental Impact Statement (EIS) is not required and this REF is an adequate level of impact assessment for this project.

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1.0 Introduction

1.1 PROPOSAL IDENTIFICATION

Governor Macquarie Drive (GMD) is a regional road under the control of Council and operates as a designated heavy vehicle route providing access to industrial developments, existing residential within the locality and Warwick Farm Racecourse. It links the State Roads of Hume Highway and Newbridge Road and accommodates approximately 15,000 vehicles per day.

GMD currently experiences traffic concerns including traffic delays and significant heavy vehicle movements. Council adopted a program to carry out a staged road widening of GMD from the current single lane in each direction to a four (4) lane road.

Consequently, Council has secured funding from the Federal Government for staged infrastructure upgrades including approximately \$3.5 million to upgrade the GMD section between Alfred Road to Childs Road in order to improve traffic efficiency and road safety. This is an extension of the recently upgraded Newbridge Road to Alfred Road section.

This REF describes the proposed works and assess all potential environmental impacts and outline measures to minimise the identified environmental impacts.

This report should be read in conjunction with the detailed design plans as shown in **Appendix 1**.

The major elements of the GMD upgrade include:

- Reconfiguration of GMD between Alfred Road to Childs Road from the existing two (2) lane road to a four (4) lane divided road, including concrete median island and on-street parking on the eastern side;
- Converting the existing single lane roundabout at the intersection with Childs Road to a dual lane roundabout;
- Converting the existing single lane roundabout at the intersection with Alfred Road to a signalised intersection;
- Installation of shared paths on both sides; and
- Install signs and line markings.

The geographical location of the project is:

Item	Road Name	Road Section		Latitude	Longitude
1	GMD	Alfred Road to Childs Road	Start	33°55'23.4"S	150°57'43.6"E
			End	33°55'08.4"S	150°57'42.6"E

A locality map of the project is indicated in the Figures 1.1, 1.2A and 1.2B.



Figure 1.1: Location of GMD Upgrade Works



Figure 1.2A: Existing GMD Layout showing Proposed Upgrades – Southern Portion



Figure 1.2B: Existing GMD Layout showing Proposed Upgrades – Northern Portion

1.2 PURPOSE OF THE REPORT

This REF has been prepared for Council who is also the determining authority in accordance with Division 5.1 of the EP&A Act.

The purpose of the REF is to describe the proposal, to document likely impacts on the environment, and to list remedial measures to minimise impact on environment.

The description of the proposed works and associated environmental impacts have been undertaken in context of Section 171 of the EP&A Regulations, the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government’s *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so, the REF helps to fulfil the requirements of Section 5.5 of the EP&A Act to ensure that Council examines and takes into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF has considered:

- Whether the proposal is likely to have a significant impact on the environment and therefore necessitate an EIS to be prepared and approval to be sought from the Minister for Planning and Infrastructure under Division 5.1 of the EP&A Act;
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in Section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement (“SIS”); and

- The potential for the proposal to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Department of Agriculture, Water and the Environment for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.

The overall objective of this report is to provide Council with information to the fullest extent possible of all matters affecting or likely to affect the environment by the construction and operation of the GMD upgrade works.

2.0 Proposal Need and Justification

2.1 BACKGROUND

GMD is the main access road from Newbridge Road (A34) for the industrial precinct to the east and the residential precinct to the west. Consequently, it carries significant heavy vehicle movements from industrial businesses within this area as well as residential traffic including pedestrians and cyclists.

Liverpool is one of the fastest growing local government areas in NSW, experiencing substantial growth in both urban release areas and redevelopment in established areas. Liverpool LGA is part of Western Sydney Parkland City on the three-city configuration of Sydney Metropolitan Area.

The NSW Government's 'A Metropolis of Three Cities – The Greater Sydney Region Plan' identifies Liverpool as a Strategic Centre with priorities being the commercial core and planning for long-term employment growth.

Liverpool City Centre is Sydney's third CBD and will continue to grow into a central business district in Sydney's south-west region. Liverpool is also a rapidly growing multicultural population region in the Sydney's south-west region.

The Liverpool City Council area is one of the largest Local Government Areas in metropolitan Sydney. The city encompasses a total land area of 305 square kilometres with 44 suburbs, with a population of 233,446, as per 2021 census.

While Liverpool's rapid population growth itself creates momentum for new business opportunities, Council is mindful that significant challenges exist in ensuring that local employment growth keeps pace with population growth.

GMD is a key link road between the State Roads, Hume Highway and Newbridge Road and provides direct access to Warwick Farm Racecourse, Inglis Riverside stables and hotel, and major industrial and warehousing areas in Chipping Norton and Warwick Farm. GMD also functions as a Liverpool City Bypass Road to provide a connection between Newbridge Road and Hume Highway and residential precincts of Moorebank, Holsworthy, Hammondville, Wattle Grove and Voyager Point.

GMD is also an important section of the freight network in the Western Sydney and functions as a first and last freight connection to industrial areas such as the Chipping Norton and Warwick Farm Industrial Areas.

The Liverpool Collaboration Area Place-based Transport Strategy has identified that GMD needs to be upgraded as a bypass road to relieve traffic in and around the Liverpool City Centre including the sections of Hume Highway and Newbridge Road close to the city centre.

Hence, progressive upgrade of GMD, a key access route that will become a future Liverpool City East Ring Road is important and Council has adopted a program for a staged upgrade.

Council has received Federal funding to upgrade GMD between Hume Highway and ATC Access Road and Newbridge Road to Childs Road. In 2021, the GMD section between Newbridge Road and Alfred Road was completed and works in the other sections are in progress. These works are likely to be completed in 2025.

In addition, GMD section between ATC Access Road and Georges River will be upgraded to a four (4) lane divided road as part of the Inglis Riverside stables and hotel and an industrial development.

2.2 PROPOSAL

This project involves the road widening of GMD between Alfred Road to Childs Road. This will be a continuation of a four (4) lane road between Newbridge Road and Alfred Road, to provide a continuous road between Newbridge Road and Childs Road.

The section of GMD between Alfred Road and Childs Road, as well as the section between Childs Road and Georges River has a single traffic lane in each direction. This section is carrying a peak hour traffic volume of approximately 900-1,100 vehicles per hour in one (1) direction which exceeds the mid-block capacity.

Hence, the need for the road upgrade as part of the staged upgrade of GMD between Newbridge Road and Hume Highway.

As indicated above the key features of the works are below:

- Road widening of the existing two (2) lane road to four (4) lane divided road separated by an island;
- Providing on-street parking on the eastern side;
- Upgrading the existing single lane roundabout to a dual lane roundabout at the intersection with Childs Road;
- Replacing the existing single lane roundabout with a signalised intersection at Alfred Road;
- Installation of shared paths on both sides; and
- Installation of signs and line markings.

Details are shown in **Appendix 1**.

2.3 OBJECTIVES OF THE PROPOSAL

2.3.1 Objectives

The objectives of the proposed upgrades are as follows:

- Improve the performance and road safety of both intersections, accommodate greater traffic volumes along GMD, provide parking along one side of the road and provide access to industrial development along both sides of the road;
- Manage congestion and reduce delays to all traffic modes including freight movements along GMD;
- Increase amenity for local residents with better traffic flow, enhanced road safety and better access between residential precincts and the arterial road network;
- Increase opportunities for local business with improved transport access to and from the shopping precincts;
- Reduce travel times and subsequent fuel consumption and greenhouse gas emissions;
- Improve road safety by reducing crashes and community cost of road trauma associated with injury crashes;
- Provide an alternative route for motorists who use Hume Highway between the M5 Motorway and Hume Highway;
- Progressive upgrade of GMD for reclassification as a classified State Road.

2.2.2 Performance Indicators

The following performance indicators would be used to ascertain whether the proposed works had achieved the above objectives:

- Increase the effective intersection capacity of GMD/Childs Road from 2640v/h (AM) and 2453v/h (PM) to 5119v/h (AM) and 4923v/h (PM);
- Increases the effective intersection capacity of GMD/Alfred Road from 2704 v/h (AM) and 2844 v/h (PM) to 5086 v/h (AM) and 5384 v/h (PM);
- Approximately 13% reduction in delays at the GMD/Childs Road intersection in the AM peak and 15% in the PM peak;
- Approximately 24% reduction in delays at the GMD/Alfred Road intersection in the AM peak and 21% in the PM peak;
- To increase practical spare capacity at the existing intersections by over 90% with a 50% reduction in the degree of saturation;
- Preventing head-on crashes by installing a raised median by providing divided carriageways on GMD.

2.4 EXISTING ROAD INFRASTRUCTURE

The existing section of GMD, between Alfred Road and Childs Road, has a single traffic lane in each direction. The road section is approximately 500m long and has two (2) different carriageway configurations made up of the section north of Alfred Road, with a carriageway width of approximately 33m and remaining section being approximately 44m road reserve to Childs Road. Travelling lanes are delineated by line markings.

The intersections with both Alfred Road and Childs Road have existing single lane roundabouts.

The western side of GMD is signposted with 'No Stopping' regulatory signs, whilst the eastern side is signposted with 'No Stopping' and '1/2P parking' restrictions.

The road section has 1.2m wide paved footpath for the full extent on the eastern side and 1.2m wide paved approximately 220m long along the western side of GMD, which connects to Ledbury Place which also has a paved footpath up to Childs Road along the western side.

In addition, the western side of GMD has a nature strip approximately 17m wide, separating GMD and Ledbury Place, a portion of this nature strip would accommodate the proposed road widening.

2.5 OPTIONS CONSIDERED

2.5.1 Identified Options

Options considered for the proposed works are summarised below:

Upgrade Option	Upgrade Option Description
'Minor' Option (Chosen)	<ul style="list-style-type: none"> ▪ Road widening of GMD between Alfred Road to Childs Road from the existing two (2) lane road to a four (4) lane divided road, including concrete median island; ▪ Upgrading the existing single lane roundabout at the intersection with Childs Road to a dual lane roundabout; ▪ Replacing the existing dual lane roundabout at the intersection with Alfred Road to a signalized intersection, subject to TfNSW approval; ▪ Constructing of shared paths along both sides between Alfred Road and Childs Road; and ▪ Installation of signs and line markings. <p>The proposed project will greatly improve road safety traffic flow and accessibility in the area.</p>
'Do Nothing' Option	<p>A "do-nothing" option has been considered. However, it would result in significant, delays and would not achieve Council's objective to widen GMD to a four (4) lane road that accommodate current and forecast traffic conditions. No benefits would be gained from this option.</p>

2.5.2 Methodology for Selection of Preferred Option

The method used in the project selection includes road capacity analysis, including the use of SIDRA Intersection Performance Analysis and Network Model carried out as part of the Liverpool collaboration area traffic study.

The study has identified that the capacity of the existing two (2) lane road will be exceeded in the medium term and road widening to a four (4) lane is required to maintain acceptable level-of-service and associated road safety.

As indicated above, the road widening would result in significant road improvement benefits which would enable traffic to operate at acceptable level of services outlined above.

The 'Do Nothing' option would not enable the road to be widened for the road capacity to be increased. Hence, the minor option involving road widening and other improvements as listed above, has been selected.

2.6 PROJECT JUSTIFICATION

This project is part of Council's proposal to widen GMD from its current generally single lane configuration in each direction to a four (4) lane divided road.

As part of a Liverpool collaboration area traffic study, Council has identified that the capacity of the existing two (2) lane road will be exceeded in the medium term and road widening to a four (4) lane is required to maintain acceptable level-of-service and associated road safety.

The project is also part of adopted scheme to progressively upgrade GMD to a four (4) lane road, with intersection treatments to improve road safety.

Council has received numerous complaints from the local community about traffic delays along GMD. The project would address this concern, benefit through traffic and hence, the wider community of South Western Sydney.

2.6.1 Mid-block Capacity

The section of GMD between Alfred Road and Childs Road, as well as the section between Childs Road and Georges River has a single traffic lane in each direction. This section is carrying a peak hour traffic volume of approximately 900-1,100 vehicles per hour in one (1) direction which exceeds the mid-block capacity.

It is forecasted that, in the medium and long term, the traffic volume in each direction would be higher than 1000 vehicles per hour. Hence, the need for road widening to two (2) lanes in each direction.

2.6.2 Road Safety Issue

The TfNSW crash data for the five (5) year period between 2016 and 2020 indicates that there were a total of nine (9) crashes along this road section including eight (8) injury and one (1) tow away (non-injury) crash. The crashes are made up of the following.

Cross traffic	4 Nos.
Side Swipe	1 No.
Emerging from Driveway	1 No.
Loss of control	1 No.
Intersection Crash	1 No.
Unknown	1 No.

Five (5) of the above crashes were investigated by the police and the remaining four (4) were self-reported. Five (5) crashes were at the existing roundabouts and the remaining were mid-block crashes.

2.6.3 Intersection Congestion

The intersection performance analysis indicates that GMD and Alfred Road intersection with the existing roundabout is currently operating at LoS B in both AM and PM peaks under the existing traffic volumes.

The existing intersection performance (LoS) will significantly reduce with the projected future traffic volume and is expected to operate at LoS F during the AM peak and LoS D during the PM peak.

Intersection performance analysis for traffic signals at the GMD/Alfred Road intersection indicates the performance with the existing traffic and projected future traffic volumes, will be LoS C in both AM and PM peak periods. This will significantly improve traffic flow and reduce congestion at this intersection, taken into consideration forecast future traffic increase.

The roundabout at the GMD and Childs Road intersection is operating at acceptable level of service and will continue to operate at the acceptable level of service with the increased future traffic volume.

2.6.4 General Benefits to Local and Wider Community

The project would provide the following additional benefits to local and wider communities:

Pedestrian Safety – There is significant pedestrian activity/desired lines across the approaches to the GMD/Alfred Road intersection, due to adjacent land use including neighbourhood shops, residential and industrial developments.

With the forecast traffic movements including heavy vehicles, the provision of traffic signals, with signalised pedestrian crossings across the four (4) road approaches, will improve pedestrian safety at the intersection.

Traffic Movements – The proposed traffic signals will reduce right turn movement conflicts promoting road safety at the intersection.

Construction Cost and Time Benefit – The construction of a dual lane roundabout at the GMD and Alfred Road intersection will require land acquisition of adjoining land parcels including, retail and industrial developments.

The proposed traffic signals can be installed within the existing road reserve without a need for land acquisition. This will reduce the project costs and time and the impact on the adjoining community.

3.0 Description of the Proposal

3.1 SCOPE OF WORKS

3.1.1 The Proposal

The proposed upgrade to GMD between Alfred Road to Childs Road would include the following general features:

Governor Macquarie Drive – Northbound

- Existing kerb alignment of approximately 220m north of Alfred Road will be retained;
- Existing nature strip between GMD and Ledbury Place/Derby Place will be used to accommodate proposed road widening including shared path. Thus, new kerb alignment will be installed in the road section of approximately 220m south of Childs Road and approximately 30m north of Childs Road;
- Revised carriageway cross section for southern portion of GMD between Alfred Road and Childs Road to incorporate a shoulder/parking lane and two (2) through lanes, and;
- Road widening for the northern portion of GMD between Alfred Road and Childs Road to accommodate two (2) through lanes.

Governor Macquarie Drive – Southbound

- Existing kerb alignment is retained for full length;
- Revised carriageway cross section to incorporate a parking lane and two (2) through lanes between both intersections for entire length, and;
- Incorporation of central median island to separate northbound and southbound travel lanes.

GMD and Alfred Road Intersection Treatment

- Intersection upgrade from dual-lane roundabout to a signalised intersection;
- Road widening on the approaches to provide two (2) through lanes in both directions along GMD;
- Signalised “Left turn only” lane on the approaches in both directions along GMD;
- Signalised right turn lanes in both directions along GMD;
- Shared through and left turn lanes on both Alfred Road approaches;
- Shared through and right turn lanes on both Alfred Road approaches.

GMD and Childs Road Intersection Treatment

- Upgrade from a single lane roundabout to a dual lane roundabout;
- Road widening on the approaches to roundabout to provide two (2) lanes in both directions along GMD;
- Single lane on all approaches along Childs Road will be retained.

Other Configurations include:

- The existing 60km/hr sign posted speed limit along GMD and existing 50km/h sign posted speed limit along Alfred Road and Childs Road;
- Shared paths along both sides of GMD.

Plans detailing the above are attached as **Appendix 1**.

3.1.2 Geometric Design

The following parameters have been adopted for the proposed detailed design.

Horizontal Geometry

- There are six (6) horizontal curves within the proposed limit of works which have all been designed in accordance with the Austroads Guide to Road Design (2021) (AGRD) Part 3 Section 7.4.1;
- The northbound lane has been super-elevated to tie into existing crossfalls along this section of GMD;
- The horizontal alignment of Alfred Road is consistent with the existing alignment with a slight offset crown introduced on the eastbound approach to incorporate the revised configuration and lane widths in accordance with the TCS layout;
- The horizontal alignment of Childs Road follows the existing alignment from the limit of works through to the intersection (on both approaches) with no superelevation introduced.

Cross Section

The cross-section geometry for both Governor Macquarie Drive and Alfred Road is shown below.

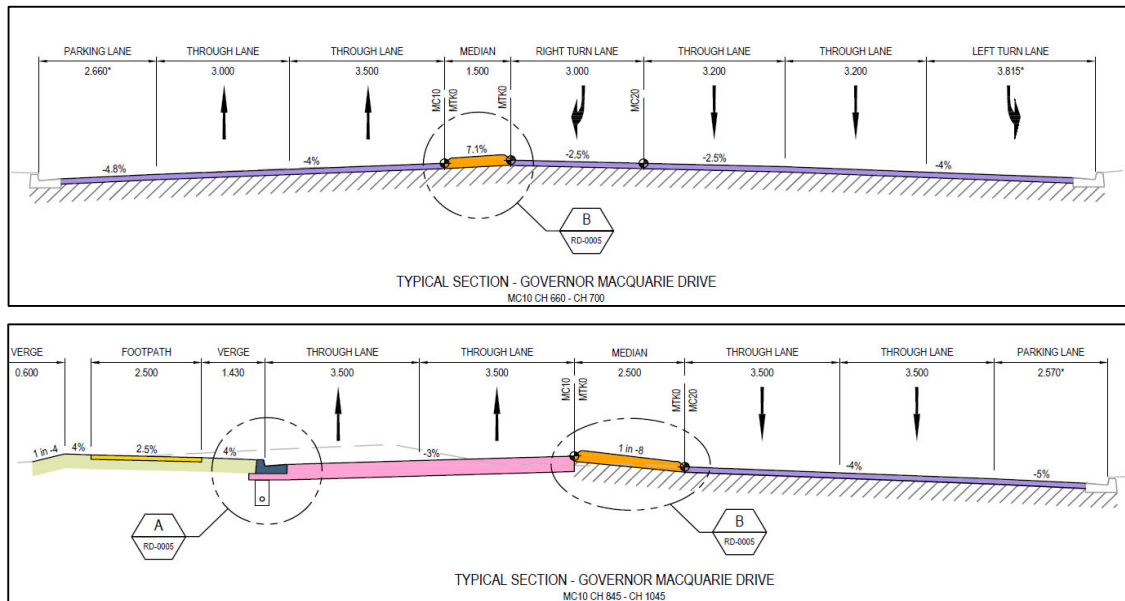


Figure 0.1: Proposed Typical Cross Sections – Governor Macquarie Drive

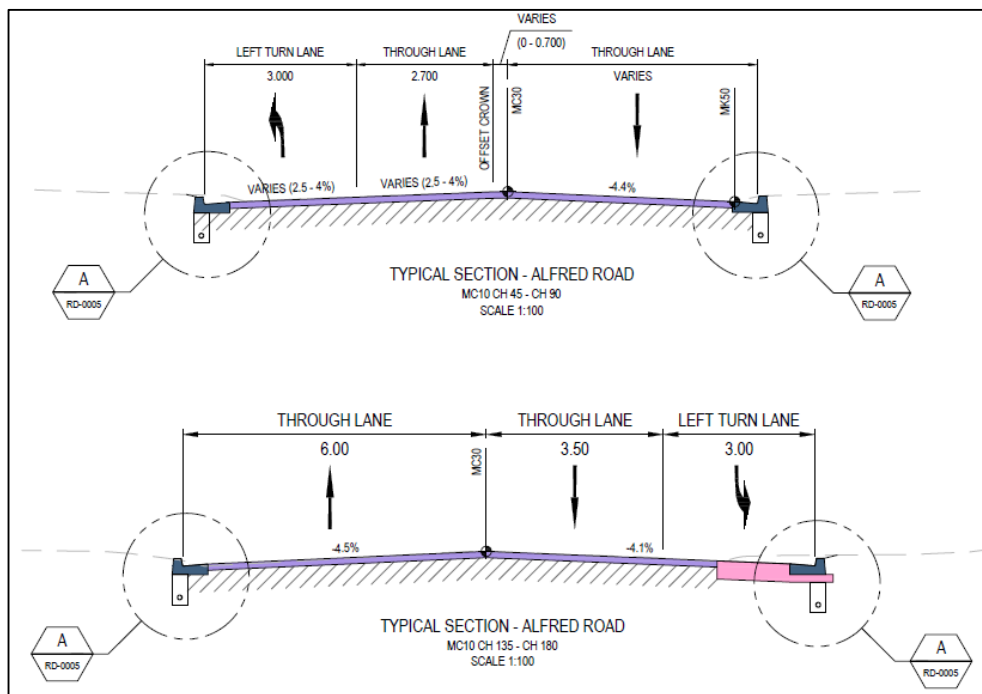


Figure 0.2: Proposed Typical Cross Sections – Alfred Road

Vertical Geometry

- The Longitudinal vertical geometry of GMD between CH580-830 has been designed to generally match the existing levels to ensure the finished surface levels remain between 0-100mm above the existing pavement;
- The vertical alignment on the southbound lanes between CH830-1050 and CH1080-1135 have been designed to match the existing levels;
- The road widening along GMD between CH830-1050, constituting the northbound lanes have been designed to reduce the required excavations though this section of road whilst ensuring the resultant crossfall within the central median islands does not exceed the maximum 12.5%;
- The northbound lanes from CH945-1050 have been superelevated on approach to the intersection (with Childs Road) to maintain a consistent crossfall through the intersection for the northbound traffic lanes;
- The longitudinal vertical geometry of both Alfred Road and Childs Road have been designed to generally match the existing levels.

Pedestrian Provisions

- The existing signalised pedestrian crossing has been designed to be retained;
- A signalised intersection has been designed to be located prior to the GMD and Childs Road intersection with a refuge located within the central median island.

The design report detailing the above has been provided as **Appendix 1B**.

3.2 CONSTRUCTION ACTIVITIES

3.2.1 Work Methodology

In accordance with the funding requirements the project is to be delivered in 2024/2025. The general work methodology for the delivery involves the following processes (listed in chronological order except when undertaken throughout the construction process):

- Detailed Design;
- Preparation and implementation of construction documents;
- Establish traffic control measures in accordance with a Traffic Management Plan (TMP);
- Installation of on-site environmental controls;
- Installation of work area on-site compound;
- Pavement, drainage and general concrete installation;
- Ongoing waste management;
- Remediate area in accordance with standard environmental safeguards.

Detailed Design

ADW Johnson has prepared the detailed design of the proposed road widening, which has been undertaken in accordance with the TfNSW/RMS Road Design guidelines and in consultation with TfNSW and Council. The detailed design has also incorporated the Level 3 Road Safety Audit recommendations based on the detailed design.

Preparation and Implementation of Construction Documents

Construction documents as recommended as part of this REF have been prepared and would be implemented as necessary.

Establish Traffic Control Measures in accordance with Traffic Management Plan (TMP)

The following control measures would be installed:

- Installation of temporary signage;
- Stop/go controls for construction vehicles;
- Concrete barriers and barrier boards;
- Temporary linemarking;
- Traffic speed lowered to 40km/h.

Further details with regards to the above would be provided within the TMP which would be prepared prior to construction commencing.

Installation of On-Site Environmental Controls

Construction of the proposed works would begin with the installation of on-site environmental controls such as erosion and sedimentation control measures in accordance with Council policies.

Installation of On-Site Compound

Installation of on-site compound requirements would be discussed with the construction agency after works are awarded.

Pavement and Asphalt Installation

- Pavement milling of the existing asphalt wearing course;
- Box out new pavement area to subgrade level;
- Construction of select and/or intermediate pavement layers;
- Installation of concrete kerbs and concrete medians including concrete infill;
- Construction of basecourse and/or intermediate asphalt layers as required;
- Median island landscape planting;
- Construction of the final 50mm wearing course;
- Installation of shared paths.

Ongoing Waste Management

The site shall be kept in a clean and tidy order at all times, with contractors being educated as to the importance of recycling and waste reduction. Waste management protocols would be included within the Construction Environmental Management Plan (CEMP) which would be prepared prior to construction commencing but which would generally include:

- Promoting the use of recycled resources through the purchasing policy;
- Minimise use of packaging materials and recycle packaging products where possible;
- Waste concrete shall be sent to a concrete recycling plant where possible;
- Chemical and contaminated waste shall be disposed of through an approved and licensed facility;
- Any mulch or green waste containing weeds shall be stockpiled separately and appropriately disposed of;
- Office waste paper will be recycled and reused where possible;
- General waste that is not recyclable will be disposed of in a bin/skip provided by an approved waste disposal operator;
- All waste will be removed from site as applicable on completion of the project.

Remediate area in accordance with Standard Environmental Safeguards

Following completion of the proposed works, all temporary barriers, signage, work area compound and environmental control devices would be removed and any exposed areas will be stabilised.

The above provides a general explanation of the anticipated construction methodology, however this may be further refined during the construction planning phase.

3.2.2 Plant, Equipment and Contractors

The following typical plant and equipment would be expected to be used during construction:

- Rollers;
- Vibratory rollers;
- Compactors;
- Pavement mill;
- Asphalt paver;
- Excavator;
- Concrete trucks;
- Concrete pumps;
- Semi-trailers.

The breakdown above provides a basic list of the anticipated plant and equipment proposed to be used. It should be noted however, that this may be further refined during the construction planning phase.

3.3 TIMING AND STAGING

The commencement date for the proposed works is in the second half of 2023 and is expected to be completed by the second half of 2024.

3.4 ENVIRONMENTAL MANAGEMENT PLAN – CONSTRUCTION PHASE ACTIVITIES

During construction, appropriate environmental safeguards would be implemented. A CEMP covering the construction phase would be prepared by the contractor prior to the commencement of construction.

All mitigation measures required prior to construction have been identified within Section 7 and would be addressed within the CEMP.

4.0 Statutory Framework

4.1 RELATIONSHIP TO PLANNING BACKGROUND

4.1.1 Environmental Planning and Assessment Act

As discussed above, the proposed REF will detail the works required to provide the GMD upgrade. It will explore all potential environmental impacts and necessary safeguards as a consequence of these works.

The process of obtaining environmental planning approval is set out in the EP&A Act. Taking the above into consideration, the application of Section 2.109 of State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (T&I)) (discussed below) characterises the proposed infrastructure works as “development permitted without consent”. This means that the project falls under Division 5.1 of the EP&A Act, rather than Division 4, as the works would be undertaken by Council as a public authority and the determining authority.

Division 5.1 of the EP&A Act establishes, under Section 5.5, a duty for determining authorities to “*examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity*” when determining if an activity should be undertaken.

5.5 Duty to Consider Environmental Impact

- (1) *For the purpose of attaining the objects of this Act relating to the protection and enhancement of the environment, a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.*

This report has been prepared to assess the potential environmental impact of the infrastructure for the purposes of satisfying Council’s duty under Section 5.5 of the EP&A Act.

- (3) *Without limiting subsection (1), a determining authority shall consider the effect of an activity on any wilderness area (within the meaning of the [Wilderness Act 1987](#)) in the locality in which the activity is intended to be carried on.*

The infrastructure site is not located within any wilderness area.

In addition to the above, Section 171 of the EP&A Regs which details elements to be considered when assessing the potential impact of an activity on the environment has been provided within **Appendix 2**.

4.2 ENVIRONMENTAL PLANNING INSTRUMENTS

4.2.1 SEPP (Transport and Infrastructure) 2021

SEPP (T&I) aims to facilitate the effective delivery of infrastructure across the State.

Section 2.109 of the SEPP permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. Section 2.109 states:

- (1) *Development for the purpose of a road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land. However, such development may be carried out without consent on land reserved under the [National Parks and Wildlife Act 1974](#) only if the development—*

- (a) is authorised by or under the *National Parks and Wildlife Act 1974*, or
- (b) is, or is the subject of, an existing interest within the meaning of section 39 of that Act, or
- (c) is on land to which that Act applies over which an easement has been granted and is not contrary to the terms or nature of the easement.

As the works are for the upgrade to GMD which is to be carried out by Council, it can be assessed under Division 5.1 of the EP&A Act and as such, development consent from Council is not required. Further, the proposed works are not located on land reserved under the *National Parks and Wildlife Act 1974*.

Part 2.2 of the SEPP (T&I) contains provisions for public authorities to consult with local Councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by SEPP(T&I) (where applicable), is discussed in Section 5 of this REF.

4.2.2 SEPP (Resilience and Hazards) 2021

Chapter 2

Chapter 2 of SEPP (R&H) aims to promote an integrated and coordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016. The SEPP applies to land within the coastal zone which includes coastal wetlands and littoral rainforests area, coastal vulnerability areas, coastal environment areas and coastal use areas. The location for works does not fall within any of these areas (see Figure 4.1).

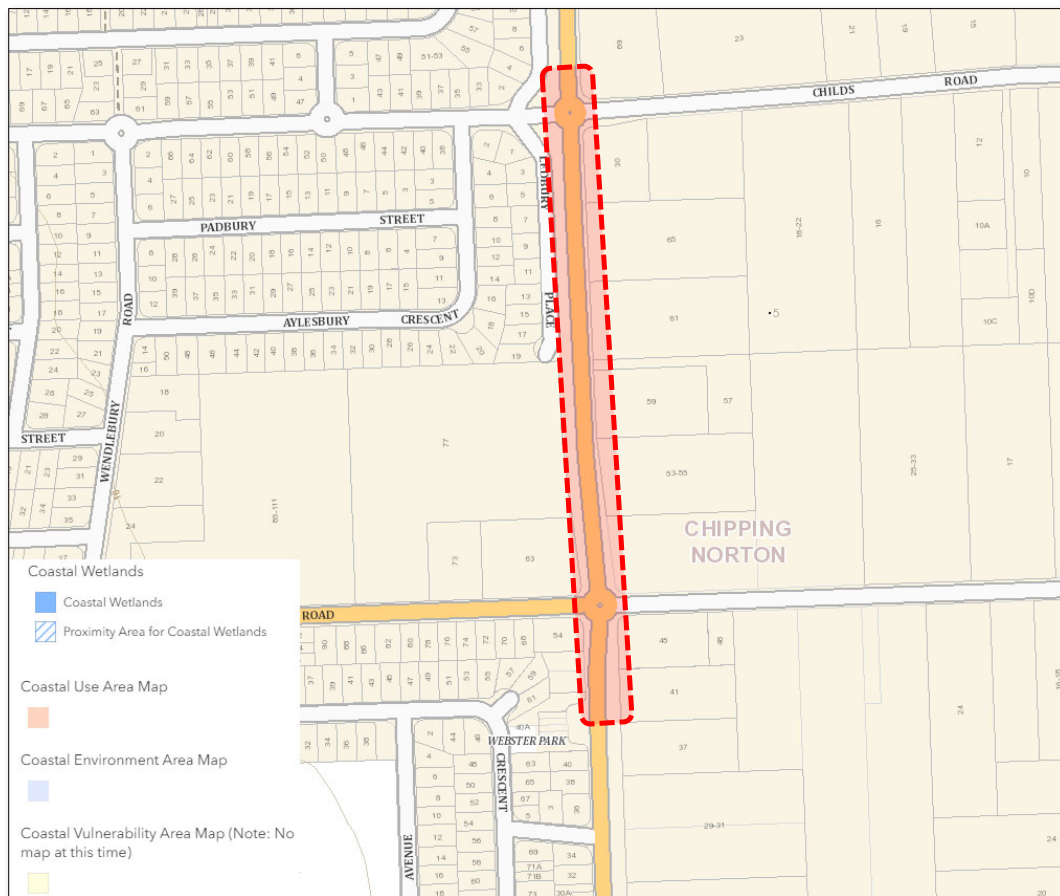


Figure 4.1: Coastal Zone Map

Chapter 4

Chapter 4 of the SEPP aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Due to the nature of the works proposed, they are not considered to be affected by contamination. Further, the site is not identified as being contaminated on the NSW Contaminated land register (see Figure 4.2).

Home Public registers Contaminated land record of notices			
Search results			
Your search for: LGA: LIVERPOOL CITY COUNCIL		Matched 16 notices relating to 3 sites.	
		Search Again	Refine Search
Suburb	Address	Site Name	Notices related to this site
CHIPPING NORTON	85-107 Alfred STREET	Former ACR	3 current and 1 former
DENHAM COURT	505 Campbelltown ROAD	Denham Court Caravan Park and Service Station	3 current
MOOREBANK	(a) 1 Bapaume ROAD	ABB Australia Pty Ltd	1 current and 8 former

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11 April 2023

Figure 4.2: EPA Contaminated Land Register

4.2.3 SEPP (Biodiversity and Conservation) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 commenced on 1st March 2022. This SEPP consolidated 11 other SEPPs within this SEPP on 1st March 2022. The *State Environmental Planning Policy (Koala Habitat Protection) 2021* (Koala SEPP) was one SEPP that was consolidated within SEPP (B&C) under Chapter 3 – Koala Habitat Protection 2020 and Chapter 4 – Koala Habitat Protection 2021. No policy changes were made as part of the consolidation nor did the legal effect of the existing SEPPs, with section 30A of the Interpretation Act 1987 applying to the transferred provisions.

SEPP (Biodiversity and Conservation) 2021 does not apply to Part-5 activities. Therefore, no further assessment is required.

4.2.4 SEPP (Planning Systems) 2021

The proposed infrastructure does not constitute State Significant Development under this SEPP and as such, assessment against the provisions contained within this SEPP is not required.

4.2.5 Liverpool Local Environmental Plan (LEP) 2008

The upgrade works are located within the GMD road reserve which is located upon R2 Low Density Residential, IN2 Light Industry and a small portion of R3 Medium Density zoned land. “Roads” are permissible with consent within all three (3) zones (refer Figure 4.3).

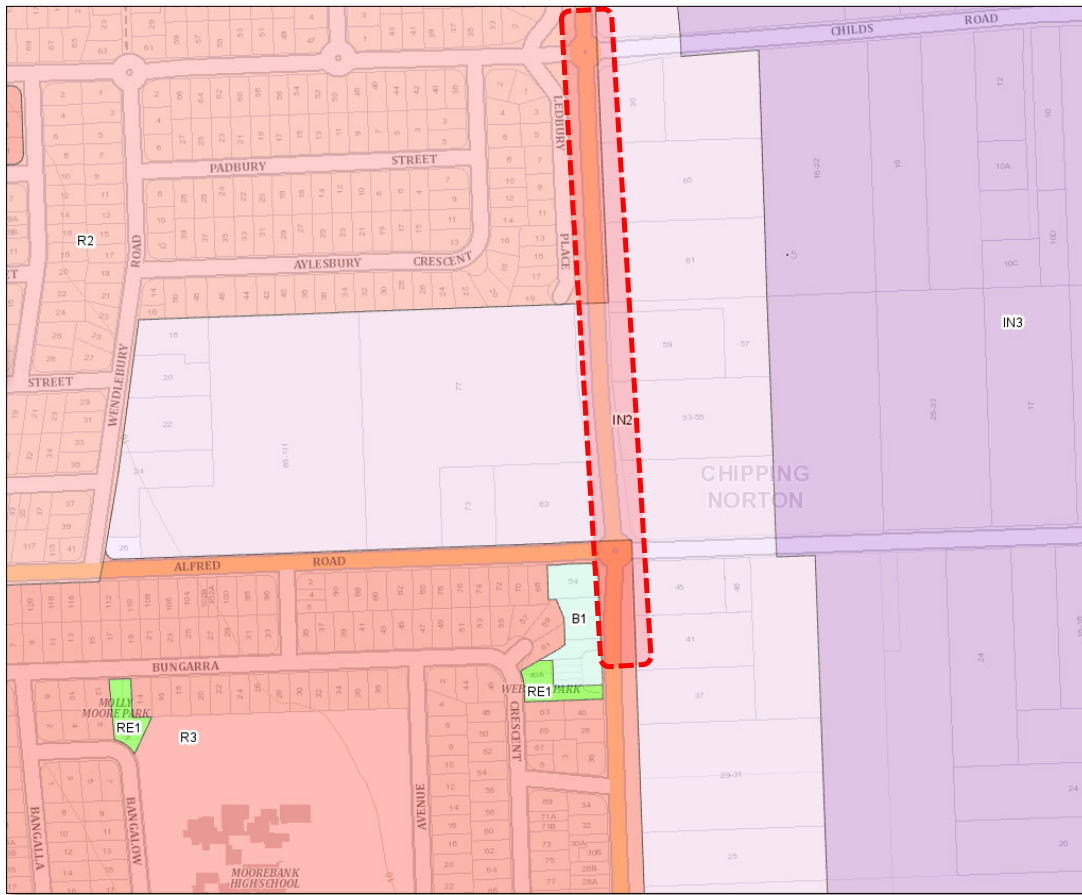


Figure 4.3: Zoning Map

Regardless of the zoning, Clause 5.12 is applicable and states:

5.12 Infrastructure development and use of existing buildings of the Crown

- (1) *This Plan does not restrict or prohibit, or enable the restriction or prohibition of, the carrying out of any development, by or on behalf of a public authority, that is permitted to be carried out with or without development consent, or that is exempt development, under State Environmental Planning Policy (Transport and Infrastructure) 2021, Chapter 2.*

Taking the above into consideration, the requirements of SEPP(T&I) are applicable to the proposed works.

4.3 NSW & COMMONWEALTH LEGISLATION

4.3.1 Commonwealth Environmental Protection and Biodiversity Conservation Act 1999

The Commonwealth EPBC Act is administered by the Department of Environment and Energy.

The EPBC Act focuses on Commonwealth interests on matters of national environmental significance such as:

- World Heritage Properties;
- National Heritage Places;
- RAMSAR Wetlands;

- National Threatened Species and Ecological Communities;
- Migratory Species;
- Nuclear Actions;
- Commonwealth Marine Areas;
- Great Barrier Reef; and
- Coal Seam Gas and Mining.

Assessments of significance are undertaken in accordance with the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (“NES”) to determine whether a proposed action is likely to have a significant impact on a matter of NES protected by the EPBC Act. If it is determined that the proposal would have a significant impact on a matter of NES, then the action must be referred to the Department of the Environment and Energy. Permits and applications need to also be made for activities which would affect any listed species or ecological community within a Commonwealth area.

The proposed infrastructure has been assessed with regards to its impact upon the above matters of NES as follows:

World Heritage Properties

The site is not a World National Heritage place, and is not in close proximity to any such area.

National Heritage Places

The site is not a National Heritage Place, and is not in close proximity to any such place.

Ramsar Wetlands

The proposed infrastructure is not located within nor is it close to Ramsar wetlands.

Great Barrier Reef

The site is not part of, or within close proximity to, the Great Barrier Reef Marine Park.

Commonwealth Marine Areas

The site is not part of, or within close proximity to, any Commonwealth Marine Area.

Threatened Ecological Communities

11 Threatened Ecological Communities are listed as potentially present within 5km of the site:

- EEC – Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community;
- EEC – Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland;
- CEEC - River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria;
- EEC – Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion;
- CEEC – Cooks River/ Castlereagh Ironbark Forest of the Sydney Basin Bioregion;
- CEEC – Cumberland Plain Shale Woodlands and Shale- Gravel Transition Forest;
- CEEC – Shale Sandstone Transition Forest of the Sydney Basin Bioregion;
- EEC – Subtropical and Temperate Coastal Saltmarsh
- CEEC – Turpentine- Ironbark Forest of the Sydney Basin Bioregion
- EEC – Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion; and

- CEEC – Western Sydney Dry Rainforest and Moist Woodland on Shale.

Vegetation on site is not commensurate with any of the above TECs.

Threatened Species

No threatened fauna or flora listed under the EPBC Act have been detected on the site.

Migratory Species

There is low potential for some of the migratory terrestrial species listed in the EPBC Act to visit the site on an irregular basis. However, it is considered that the proposal is highly unlikely to significantly affect the availability of potential habitat within the locality for such mobile species, or disrupt migratory patterns.

Nuclear Actions – N/A

Coal Seam Gas and Mining – N/A

A complete assessment with regards to matters of NES is provided within the Environmental Assessment Report (EAR) located within **Appendix 3**.

Taking the above into consideration, the project is considered unlikely to have any significant impact on any matters of NES. With this in mind, the activity is not deemed to be a controlled action under the EPBC Act and a referral to the Department of the Environment and Energy is not considered necessary.

4.3.2 Biodiversity Conservation Act 2016

Section 7.2 of the BC Act states:

7.2 Development or activity “likely to significantly affect threatened species”

For the purposes of this Part, development or an activity is likely to significantly affect threatened species if—

- it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or*
- the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
- it is carried out in a declared area of outstanding biodiversity value.*

To avoid doubt, subsection (1)(b) does not apply to development that is an activity subject to environmental impact assessment under Part 5 of the [Environmental Planning and Assessment Act 1979](#).

The impact to 0.083ha of native vegetation and the existing exotic vegetation is highly unlikely to have significant impacts on any threatened ecological community or threatened species.

Taking the above into consideration, the proposed works are unlikely to have a significant impact on threatened species in accordance with Section 7.2 (1)(a).

Further, the proposed works are not located within a declared area of outstanding biodiversity value pursuant to Section 7.2(1)(c).

In summary, the activity is unlikely to significantly affect threatened species pursuant to Section 7.2 of the BC Act.

Full details with regards to the above, including a 5-part test in accordance with Section 7.3 is provided within the EAR located within **Appendix 3**.

4.3.3 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (“NPW Act”) is administered by the Office of Environment and Heritage (“OEH”) and is the primary legislation for the protection of Aboriginal cultural heritage in NSW.

In terms of Aboriginal heritage, the objects of the Act are:

- (1) *The objects of this Act are as follows:*
- (b) *the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to:*
 - (i) *places, objects and features of significance to Aboriginal people, and*

Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to harm them. If harm to Aboriginal objects and places is anticipated, there is a requirement to apply for an Aboriginal Heritage Impact Permit (“AHIP”) under Sections 87 and 90 of the Act.

An AHIMS search has been prepared and is provided as **Appendix 4**. No Aboriginal sites or places have been recorded or declared within the works area. Furthermore, the works are located over an existing road reserve and as such, have been extensively disturbed through the road itself as well as service installation. With this in mind, the proposed works would not require an AHIP under the NPW Act.

4.3.4 Heritage Act 1977

The *Heritage Act 1977* was introduced to conserve the environmental heritage of NSW. Environmental heritage is defined as including buildings, works, relics, or places which are of historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance to the state.

The site is not identified as containing or being adjacent a heritage item, nor as being located within a heritage conservation area.

4.3.5 Fisheries Management Act 1994

Threatened Species & Endangered Ecological Communities

Schedules 4, 4A and 5 of the FM Act contain lists of fish and marine vegetation species, ecological communities and populations which have been determined by the NSW Fisheries Scientific Committee as being under threat of serious decline that could ultimately lead to extinction. Section 221ZX of the FM Act provides requires that a SIS be prepared for an activity that is likely to significantly affect threatened species, populations or ecological communities or their habitats as listed under the FM Act.

No habitat for any of the threatened species, populations or communities listed under the Act are considered to be affected given the nature of the location for the proposed infrastructure works and as such a SIS is not required.

Key Threatening Processes (“KTP”)

Schedule 6 of the FM Act contains a list of KTPs, diseases and noxious fish and marine vegetation that have a negative impact on listed threatened species, populations and/ or communities.

No KTPs have the potential to affect the site as a consequence of the proposed infrastructure.

Taking the above into consideration, it is concluded that the proposed infrastructure would not significantly impact on threatened species, populations or ecological communities, or their habitats as listed under the FM Act and as such, a SIS is not required.

4.3.6 Water Management Act 2000

The *Water Management Act 2000* (“WMA”) provides for the integrated and sustainable management of NSW waters through the requirement for certain developments/activities to gain licenses/approvals including:

Chapter 3: Part 2 - Licenses

Water Access Licence

Water access licences (WALs) entitle licence holders to specified shares in the available water within a particular water management area and to take water at specified times, rates or circumstances from specified areas or locations.

As the proposed works generally involve the milling and resheeting of the existing pavement, there would be no requirement to obtain a WAL.

Chapter 3: Part 3 – Approvals

Controlled Activity

Section 91E of the WMA makes it unlawful for a person to carry out a controlled activity within waterfront land without a Control Activity Approval.

The proposed works would not include any works on waterfront land, with the nearest watercourse being over 800m to the west at Georges River.

Aquifer Interference

Section 91F of the WMA makes it unlawful for a person to carry aquifer interference activity without an aquifer interference approval.

As the proposed works generally involve the milling and re-sheeting of the existing pavement, there would be no aquifer interference.

4.3.7 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (“POEO Act”) establishes the NSW Environmental Regulatory Framework and determines whether an Environment Protection Licence (“EPL”) is needed for certain works.

The relevant objects of the Act are to:

- *Protect restore and enhance the quality of the environment in NSW, particularly with regard to ESD;*
- *Provide increased opportunities for community involvement;*
- *Ensure community access to information about pollution; and*
- *Reduce risk to human health and degradation of the environment.*

Chapter 3 of the POEO Act provides for a single licensing arrangement to replace the different licences and approvals that were required under separate Acts relating to air pollution, water pollution, noise pollution and waste management.

Schedule 1 of the POEO Act lists activities for which a licence is required and includes road construction as follows:

- 35 Road construction**
- (1) *This clause applies to road construction, meaning the following—*
- (a) *the construction of roads (including the widening or rerouting of existing roads) and any related tunnels, earthworks and cuttings,*
 - (b) *any extraction of materials necessary for that construction,*
 - (c) *any on site processing (including crushing, grinding or separating) of any extracted materials or other materials used in that construction.*
- (2) *However, this clause does not apply to—*
- (a) *the maintenance or operation of any road, or*
 - (b) *the replacement of part of an existing road.*
- (3) *The activity to which this clause applies is declared to be a scheduled activity if the activity results in one or more of the following—*
- (a) *the extraction or processing (over the life of the construction) of more than—*
 - (i) *50,000 tonnes of materials in the case of premises in the regulated area or in the local government areas of Bega Valley, Eurobodalla, Goulburn Mulwaree, Queanbeyan-Palerang Regional or Snowy Monaro Regional, or*
 - (ii) *150,000 tonnes of material in any other case,*
 - (b) *the existence of 4 or more traffic lanes (other than bicycle lanes or lanes used for entry or exit) for a continuous length of at least—*
 - (i) *1 kilometre—where the road is in a metropolitan area and is classified, or proposed to be classified, as a freeway or tollway under the [Roads Act 1993](#), or*
 - (ii) *3 kilometres—where the road is in a metropolitan area and is classified, or proposed to be classified, as a main road (but not a freeway or tollway) under the [Roads Act 1993](#), or*
 - (iii) *5 kilometres—where the road is not in a metropolitan area and is classified, or proposed to be classified, as a main road, freeway or tollway under the [Roads Act 1993](#).*

In response to the above, the proposed upgrades would most likely be considered “maintenance” or “replacement”. Further, the amount of road base required in the works would be significantly less than 150,000 tonnes and the length of the road is less than 3km. For these reasons, the proposed works would not require an EPL under the POEO Act.

4.3.8 Roads Act 1993

The *Roads Act 1993* outlines the processes involved with the opening of roads, road levels, closing of public roads, roadwork, regulation of traffic (both temporary and permanent) by roads authorities, entry onto land and financial assistance to roads authorities.

Section 138 of the Act provides:

138 Works and structures

- (1) *A person must not:*
- (a) *erect a structure or carry out a work in, on or over a public road, or*
 - (b) *dig up or disturb the surface of a public road, or*
 - (c) *remove or interfere with a structure, work or tree on a public road, or*
 - (d) *pump water into a public road from any land adjoining the road, or*
 - (e) *connect a road (whether public or private) to a classified road,*

otherwise than with the consent of the appropriate roads authority.

Any approvals required pursuant to Section 138 would be obtained prior to construction commencing.

4.3.9 Waste Avoidance & Resource Recovery Act 2001

The objects of this Act include encouraging efficient use of resources and reducing environmental harm in accordance with the principals of ecologically sustainable development. The Act establishes a waste hierarchy for the avoidance, resource recovery and disposal of waste.

To meet these objectives the Act sets in place, a hierarchy of waste management by way of avoidance, recovery and disposal in descending order.

It is Council policy to recycle existing material to minimise disposal of road material.

4.3.10 Crown Lands Act 1989

The Crown Lands Act 1989 is administered by the NSW Department of Lands and controls the administration and management of Crown land. The object of the Act is to ensure that Crown Land is managed for the benefit of the NSW community.

Given that the proposal does not involve Crown land, the Crown's consent is not required from the NSW Department of Lands.

4.3.11 Biosecurity Act 2015

The primary obligations of this Act are to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers.

Given that the construction of the shared pathways may require the removal of topsoil, the spread of weeds is a possibility. During construction, the removal of or disturbance to these weeds would be managed using industry-standard best practices to ensure the obligations of this Act were met in terms of minimisation of biosecurity, weed and pathogen risks. These have been incorporated into the mitigation measures discussed within Section 6.

5.0 Stakeholder and Community Consultation

5.1 COMMUNITY CONSULTATION

5.1.1 Adjoining and/or Affected Landholders

The proposed works would occur within close proximity to both residential and business users, with the closest being approximately 15m from the works (installation of the shared pathway). At times, driveways to these properties would be blocked and general construction impacts would occur. For these reasons, consultation with residents/businesses in the immediate vicinity has been undertaken as part of the Detailed Design process.

5.1.2 Local Aboriginal Communities

Consultation with Local Aboriginal Communities is not considered necessary in this instance due to the minor nature of the works and its location within a disturbed setting.

5.1.3 The General Community

Community consultation would involve the following:

- Design information and a copy of the REF would be placed on Liverpool Listens website for community feedback;
- Residents close to the road section would receive information about the project via a letter box drop with request for feedback over 28 days;
- Design information and a copy of the REF would be placed at Council's Customer Service for review and community feedback.

5.2 GOVERNMENT AGENCY & STAKEHOLDER CONSULTATION

5.2.1 SEPP (T&H) 2021 Section 2.10-2.14 Consultation with Council

Section 2.10 of the ISEPP identifies instances when the relevant Council should be consulted as part of the infrastructure works as follows:

Section 2.10(1)

This clause applies to development carried out by or on behalf of a public authority that this Policy provides may be carried out without consent if, in the opinion of the public authority, the development:

- (a) *will have a substantial impact on stormwater management services provided by a Council, or*

The proposed infrastructure would impact on the existing stormwater management services provided by Council. Council have reviewed the initial concept designs in this regard and any comments provided have been incorporated in the Detailed Design.

- (b) *is likely to generate traffic to an extent that will strain the capacity of the road system in a local government area, or*

The proposed infrastructure would have a minor impact on increased traffic during construction, however it would be temporary only.

- (c) *involves connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by a Council, or*

The proposed infrastructure would have no impacts on the existing sewerage system.

- (d) *involves connection to, and use of a substantial volume of water from, any part of a water supply system owned by a Council, or*

The proposed infrastructure does not involve connection to a water system owned by Council.

- (e) *involves the installation of a temporary structure on, or the enclosing of, a public place that is under a Council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential, or*
- (f) *involves excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a Council is the roads authority under the [Roads Act 1993](#) (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath).*

TfNSW and Council have been consulted throughout the design phase and will continue to be consulted through to construction. Comments received from both authorities with regards to the design have been incorporated as required.

Section 2.11 is not applicable as the infrastructure does not impact on items of local heritage significance.

Section 2.12 is not applicable as the infrastructure would not change flood patterns within a flood liable area.

Section 2.13 is not applicable as the infrastructure does not fall under any of the relevant provisions.

Section 2.14 is not applicable as the works are not located on land that is within a coastal vulnerability area zone.

5.2.2 SEPP (T&I) 2021 Section 2.15 - Consultation with authorities other than Council

Section 2.15 of the SEPP identifies instances when public authorities other than the Council should be consulted as part of the infrastructure works, as follows:

- (1) *A public authority, or a person acting on behalf of a public authority, must not carry out specified development that this Policy provides may be carried out without consent unless the authority or person has:*
- (a) *given written notice of the intention to carry out the development (together with a scope of works) to the specified authority in relation to the development, and*
 - (b) *taken into consideration any response to the notice that is received from that authority within 21 days after the notice is given.*
- (2) *For the purposes of subclause (1), the following development is **specified development** and the following authorities are **specified authorities** in relation to that development:*
- (a) *development adjacent to land reserved under the [National Parks and Wildlife Act 1974](#) or to land acquired under Part 11 of that Act—the Office of Environment and Heritage,*
 - (b) *development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone—the Office of Environment and Heritage,*

- (c) development adjacent to an aquatic reserve or a marine park declared under the [Marine Estate Management Act 2014](#)—the Department of Industry,
- (d) development in the foreshore area within the meaning of the [Sydney Harbour Foreshore Authority Act 1998](#)—the Sydney Harbour Foreshore Authority,
- (e) development comprising a fixed or floating structure in or over navigable waters—Roads and Maritime Services,
- (f) development for the purposes of a health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land (as defined by the Act)—the NSW Rural Fire Service,
- (g) development that may increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map—the Director of the Observatory,
- (h) development on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument—the Secretary of the Commonwealth Department of Defence,
- (i) development on land in a mine subsidence district within the meaning of the [Mine Subsidence Compensation Act 1961](#)—the Mine Subsidence Board.

Section 2.15 is not applicable as the proposed infrastructure is not identified as a “specified development”. Specifically, the infrastructure is not located within any of the above areas, including mine subsidence districts.

5.2.3 Consultation Beyond SEPP (T&I) 2021

In addition to the above, consultation has been undertaken with TfNSW throughout the funding and design stage of the project. Both Council and TfNSW have worked together to define the current issues and identify appropriate solutions for this section of GMD. These have been discussed in detail within Section 2.

6.0 Consideration of Environmental Factors

It is a requirement under Division 5.1 of the EP&A Act that all matters likely to affect the environment by reason of the activity be taken into account to the fullest extent possible.

The potential environmental impacts of the proposed infrastructure works have been generated based on the following:

- The background and objectives behind the proposed works as discussed within Section 2;
- The infrastructure components proposed, and the construction activities required to develop them, as discussed within Section 3;
- The legislative framework within which the works must comply, as discussed within Section 4;
- The input from relevant stakeholder and community consultation, as discussed within Section 5; and
- The existing environmental conditions, potential impacts and proposed safeguards, discussed below within Section 6.

6.1 LAND USES & SERVICES

6.1.1 Existing Environment

Site Description: The section of GMD between Alfred Road and Childs Road provides direct access(s) to industrial, warehousing, residential and neighbourhood shopping centre developments within the area.

Property Description: The proposed works are located entirely within the GMD road reserve and would not encroach into any private properties.

Services/Easements: Various services run along both sides of GMD; however, these would not be impacted by the proposed works.

6.1.2 Impact Assessment

Construction

The construction of the proposed infrastructure has the potential to impact on land use through general impacts on public amenity and potential disruption to services during construction.

Operation

The operation of the GMD upgrade would have a general improvement to the existing land users within the vicinity through the improved traffic and safety situation as discussed in detail within Section 2.

6.1.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure on or by land uses, the following safeguards are proposed:

- 1.1 Notification would be given to all property owners who adjoin the infrastructure at least 14 days prior to works commencing. The notification shall include a brief description of the works and the dates and times they would be undertaken along with contact details in the case of complaints.

- 1.2 A Dial Before You Dig must be undertaken prior to any works commencing in order to locate buried services. If works are to be undertaken below power lines refer to Ausgrid Guidelines NS 209 Operating Cranes and Plant in Proximity to Power Line. If works are to be undertaken within the vicinity of Telstra pits refer to the Network Integrity Help Desk on 1800 653 935.
- 1.3 Council will consult with relevant service providers to identify possible interactions and develop procedures to be implemented to minimise the potential for service interruptions which have the potential to impact on existing land use.

Other mitigation measures which also relate to land use are included below within more specific categories.

6.2 SOILS & GEOLOGY

6.2.1 Existing Environment

Topography: Land within the subject site area for the proposed infrastructure upgrade starts to 5m AHD at the Alfred Road GMD intersection and has a gentle rise to approximately 8m AHD along the route and to the Childs Road and GMD intersection. With this in mind, the topography would be considered gentle and does not present any constraints to the works.

Rock: Given that the proposed infrastructure would only involve pavement milling of the existing asphalt wearing course, rock would not be encountered during construction.

Contamination: There is no known contamination along the infrastructure route and the site is not listed on the EPA contaminated land register (see Figure 4.2).

Mine Subsidence: The subject site is not located within a mine subsidence district.

Acid Sulphate Soils (ASS): Liverpool LEP 2008 identifies the infrastructure area as containing Class 2 and 5 ASS (see Figure 6.1).

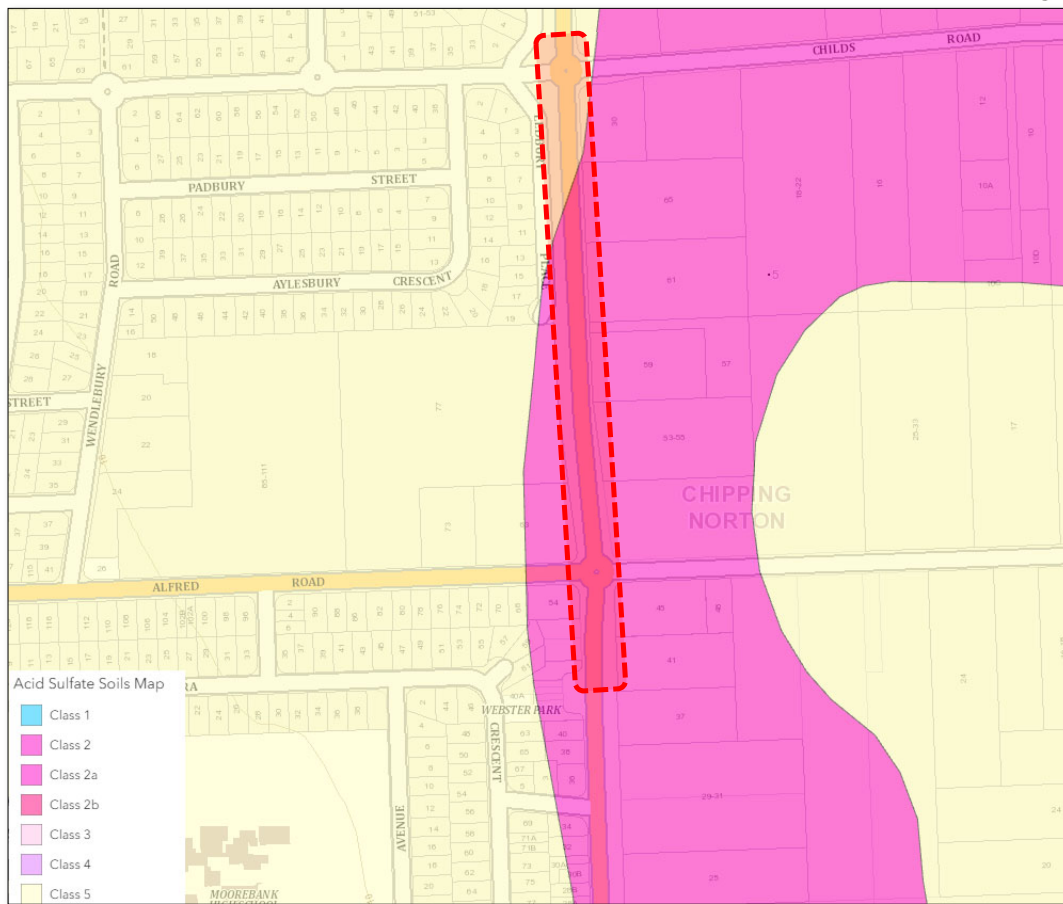


Figure 6.1: LEP ASS Map

Landslip: The site is not located within an area expected to be subject to landslip given its gentle topography and soil structure.

Natural Cliff Features, Rock Outcrops or Rock Shelves: The site does not contain any cliff features, rock outcrops or rock shelves.

High Erosion Potential: The site does not have a high erosion potential due to the generally sealed nature of the works area and surrounds and gentle topography. Ground disturbing works would however, be required to install the shared pathways.

6.2.2 Impact Assessment

Construction

Based on the existing environment discussed above, construction of the proposed infrastructure has the potential to impact on, or be impacted by soils through:

- **Disturbance to ASS:** Due to the presence of Class 2 ASS, works which penetrate the nature ground level have the potential to expose ASS. Whilst the majority of works would occur at ground level, site preparation works for the shared pathways may occur below natural ground level;
- **Erosion and Sedimentation:** Impact to soils associated with construction activities would generally be limited to short-term erosion by means of wind and water;
- **Disturbance to Topsoil:** The removal of topsoil would be required as part of the construction works and as such, soil restoration measures would need to be adopted.

Operation

There were no ongoing impacts on soils and geology identified as a result of the proposed works.

6.2.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure on or by soils and geology, the following safeguards are proposed:

- 2.1 Prior to the disturbance of ASS, an Acid Sulfate Soils Management Plan (ASSMP) should be prepared in accordance with ASSMAC guidelines.
- 2.2 An Erosion and Sediment Control Plan shall be prepared including measures consistent with the requirements of Council. Such measures are to be put in place prior to the commencement of construction.
- 2.3 Where excavated soil is to be used in site restoration, it would be excavated and stockpiled in sequential layers corresponding to the existing soil profile. Topsoil and leaf litter is to be removed first and windrowed in separate stockpiles of less than 1m in height on the upslope side of excavations. Soil layers would be replaced sequentially so that the soil profile is restored as closely as possible to its pre-work status.

The natural landform of the site(s) would be restored as closely as possible to the pre-works condition.

Rehabilitating exposed areas as soon as possible following excavation and completed no more than 10 days after works.

- 2.4 Should any unexpected contaminants be encountered during the works, work in the area would cease immediately and the Council Officer would be contacted to seek and advise on the appropriate action.

6.3 HYDROLOGY, FLOODING & WATER

6.3.1 Existing Environment

Watercourses/Drainage Lines: The nearest watercourse to the proposed works, is over 800m to the west at Georges River.

Flooding: The site is impacted by low and medium risk flooding (see Figure 6.2)

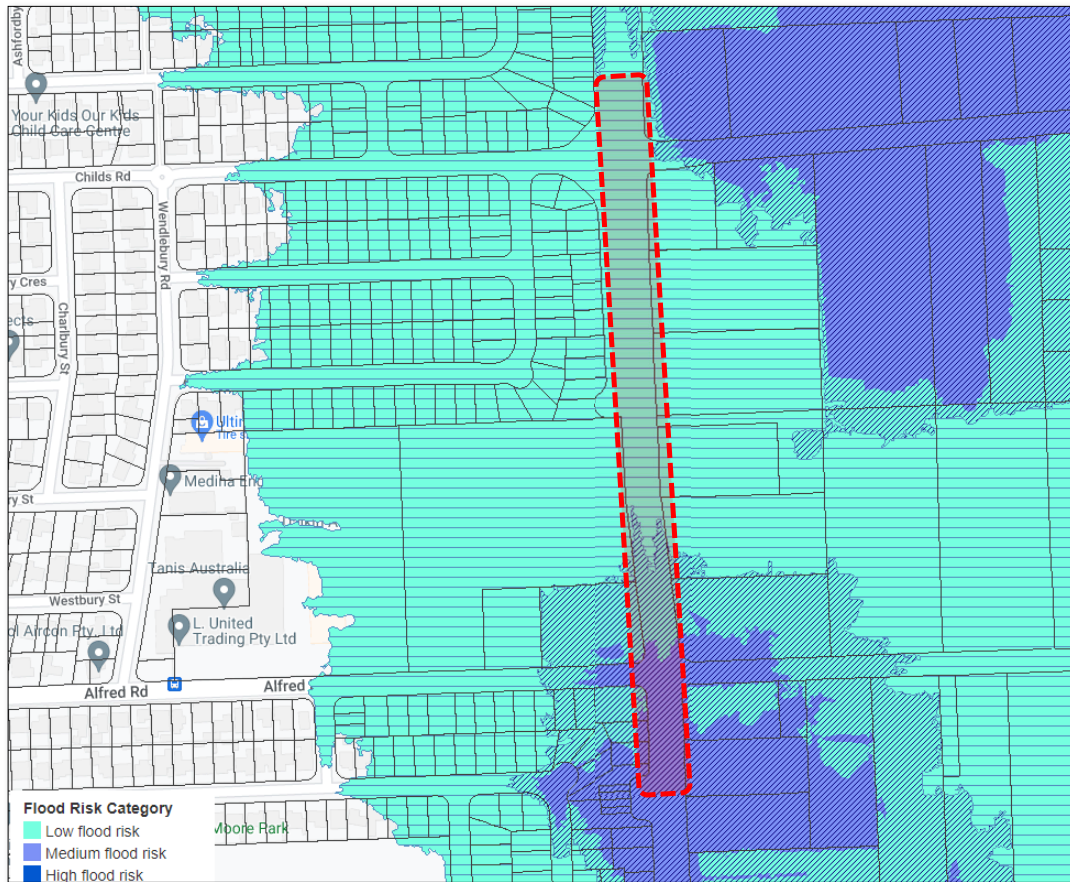


Figure 6.2: Flood Map

Drinking Catchment: The site is not located within a drinking water catchment.

6.3.2 Impact Assessment

Construction

Based on the existing environment discussed above, the construction of the proposed infrastructure has the potential to impact on or be impacted by hydrology, flooding and water through:

- Works within flood prone land: Should construction occur during a period of flood, potential impacts on flood waters or obstruction to flood waters may occur;
- Erosion and Sedimentation: During earthworks for the construction of the proposed infrastructure works, surface soils would be exposed leading to potential soil erosion and sediment export. Potential impacts occurring directly from the soil eroded during the construction could include increased turbidity in receiving water bodies, damage to aquatic biota and siltation of downstream waterways;
- Fuels, Concrete wash and Chemicals: Spillage of fuels, concrete and chemicals used in construction works has the potential to impact upon surface water quality.

Operation

There were no ongoing impacts on hydrology, flooding and water identified as a result of the proposed works.

6.3.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure on or by hydrology, flooding and water, the following safeguards are proposed:

- 3.1 In the event of heavy rainfall, no construction equipment, including stockpiles shall be located within flood affected portions of the site, so as to not block the passage of flood waters.
- 3.2 All fuels, chemicals and liquids are to be stored in an impervious bunded area away from:
 - Rivers, creeks or any areas of concentrated water flow;
 - Flooded or poorly drained areas including those identified within Figure 6.2;
 - Slopes above 10%;
 - The storage and handling of fuels and chemicals shall comply with Australian Standard AS1940;
 - A 'spill kit' will be kept on site at all times for potential chemical or fuel spills;
 - Any fuel, lubricant or hydraulic fluid spillages on land are to be collected using absorbent material and the contaminated material disposed of at an Office of Environment & Heritage licensed waste depot.
- 3.3 Potable water is to be used for wash down of vehicles and equipment.
- 3.4 Water quality control measures are to be used to prevent any materials (e.g. concrete, grout, sediment etc.) entering drain inlets or waterways. Containment material is to be used to capture / filter water used in wash down.
- 3.5 No concrete wash out is to be carried out on-site.
- 3.6 Water required for the proposal would be obtained from an approved source (e.g. potentially including hydrants or tankers).

6.4 BIODIVERSITY

6.4.1 Existing Environment

Native Vegetation/Endangered Ecological Communities (EEC): 11 Threatened Ecological Communities are listed as potentially present within 5km of the site. Vegetation on site is not commensurate with any of the above TECs.

EPBC Act & BC Act listed threatened species, ecological community or migratory species: None identified during site inspection and none anticipated due to lack of suitable habitat.

Wetlands, Aquatic flora or habitat (i.e. seagrasses, mangroves): Nil

Weeds/Pests: Roadside weeds were present within the GMD road verges.

National Parks: N/A

Coastal zone: N/A

6.4.2 Impact Assessment

Construction

Based on the existing environment discussed above, the construction of the proposed infrastructure has the potential to impact on ecology through:

- Spread of Weeds: The proposed works area contains a variety of weeds, which if not managed properly, construction impacts could aid in their spread.

Operation

There were no ongoing impacts on biodiversity identified as a result of the proposed works.

6.4.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure on or by biodiversity, the following safeguards are proposed:

- 4.1 Appropriately fence the site between the proposed works and retained vegetation.
- 4.2 Tree protection fencing should be used on trees to be retained near to the works.
- 4.3 Required clearing of any native vegetation on site should be undertaken in the presence of a suitably experienced ecologist to ensure any displaced native fauna can be taken into care and dealt with appropriately.
- 4.4 Any landscaping to occur should utilise native, endemic species that form part of the surrounding vegetation community.
- 4.5 Impacts Chytrid and Phytophthora will be managed through the adoption of site hygiene protocols.
- 4.6 Establish and maintain appropriate erosion and sediment controls during both construction and operation.
- 4.7 Rehabilitation should focus on stable landform shaping to facilitate regeneration of native species occurring on site where natural areas are disturbed. No exotic species are to be introduced to site with the exception of sterile cover crops (if appropriate).
- 4.8 Appropriate stormwater management controls will be required to be implemented and maintained to avoid any indirect impacts to nearby watercourses.
- 4.9 No machinery or material should be stored within the retained vegetation or within the dripline of retained trees.
- 4.10 Effective weed control should be used on site, ensuring that appropriate methods are used to eliminate and dispose of highly competitive weeds.

Full details with regards to biodiversity matters are located within the EAR (refer to **Appendix 3**).

6.5 NOISE & VIBRATION

6.5.1 Existing Environment

Noise Environment: The site is in an area of mixed suburban and commercial/industrial activity. There are residential receivers (northern portion) and commercial/semi-industrial (southern portion) along the western side of the road and commercial/semi-industrial receivers along the eastern side of the road.

Sensitive Receivers: The nearest sensitive receivers to the works are the existing dwellings located on the western side (northern portion) of GMD (see Figure 6.3).

Critically Sensitive Receivers: The nearest critically sensitive receiver to the works is Moorebank High School, approximately 260m to the south-west (see Figure 6.3).

There are no other critically sensitive receivers such as nursing homes or hospitals in the nearby vicinity.

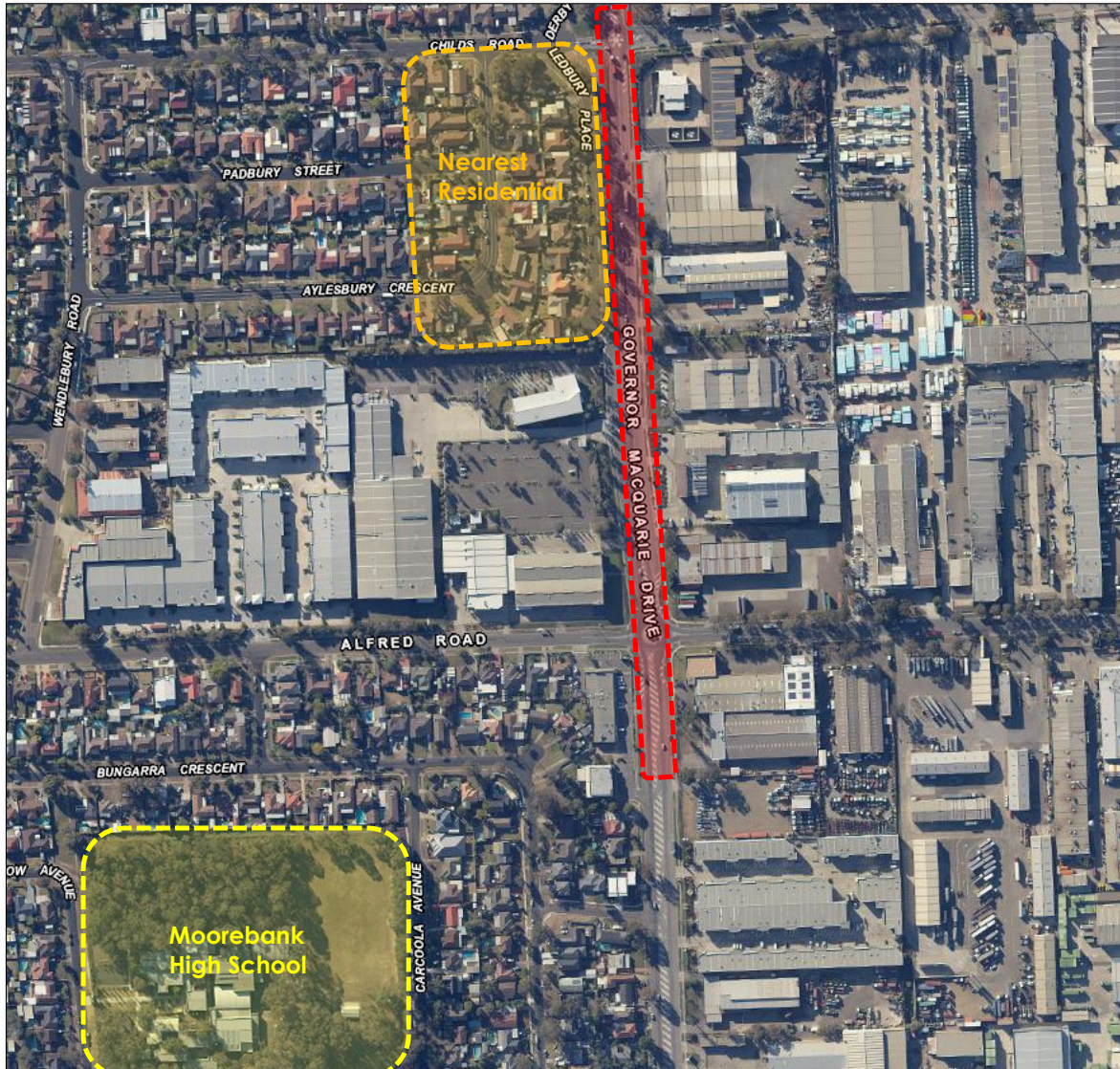


Figure 6.3: Nearby Sensitive Receivers

Vibration: Given the close proximity of the existing dwellings on GMD, it is considered reasonable to make an assessment of vibrational impacts in this regard.

6.5.2 Impact Assessment

Construction

Based on the existing environment discussed above, the construction of the proposed infrastructure has the potential to impact on noise and vibration through:

- General construction based noise: Construction works for the proposed upgrades would occur for more than three (3) weeks, however noise at one (1) location would generally move along the alignment of GMD.

Equipment used during construction may include excavators, drilling equipment, trucks, rollers, generators and compactors – all machines likely to emit potential noise.

In order to minimise impacts on traffic during construction, some works would need to be undertaken outside of the standard working hours of:

- Monday-Friday: 7:00am to 6.00pm;
- Saturday: 8.00am to 1.00pm;
- Sunday and Public Holidays: no work.

To assess the impacts in this regard, a Construction Noise and Vibration Assessment was undertaken. The assessment concluded that:

- The predicted noise levels show that any residences which were within 25m of the centre of the works may be in the “highly affected” zone, that is, levels exceeding 75 dB(A) Leq (15 min). The closest parts of the construction works will be over 30m from the facade of the nearest residences. There will, therefore, be no residences in the highly affected category;
- All of the commercial premises along the road are set back from the edge of the pavement and, in many instances separated by car parking areas. The nearest facades are approximately 30m from the closest parts of the construction work;
- Compared to the most stringent noise management level for offices and retail outlets (i.e., 70 dB(A) Leq (15 min)), the theoretically predicted construction noise levels may exceed the adopted criterion at the most exposed facade of offices or commercial locations that are within 40m of the centre of the construction works. Under such circumstances noise management practices should be implemented,

Full details in this regard are provided within the Construction Noise and Vibration Assessment located within **Appendix 5**.

- Vibration associated with the use of construction equipment: Vibration impacts on buildings and humans can occur when construction requires heavy equipment to remove existing road surfaces or compact new road surfaces etc.

To assess the impacts in this regard, a Construction Noise and Vibration Assessment was undertaken. The assessment concluded that:

- The vibration dose may exceed the acceptable level at some residential receivers that are close to the site of the activity, but would be below the acceptable level at commercial receivers.

As the vibration dose criteria are based on human comfort, they are only applicable when the residents are at home whilst the works are taking place.

- Received vibration levels would be less than a peak particle velocity of 5mm/s at distances of approximately 15m from a vibratory roller and less than 10m from a roller.

Based on the most stringent building damage criterion, this shows that there is little likelihood of damage to any buildings due to the proposed construction works.

Full details in this regard are provided within the Construction Noise and Vibration Assessment located within **Appendix 5**.

Operation

The proposed works would increase the capacity of GMD, however would also improve its LoS. With this in mind, the noise currently experienced during operation is likely to be similar to that following the upgrade works.

There were no ongoing vibration impacts identified as a result of the proposed works given that the alignment of GMD would not alter.

6.5.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure by noise and vibration, the following safeguards are proposed:

- 5.1 **Noise planning:** The letterbox drop should include, as a minimum, all receivers within the area marked in red, and (i.e., residences 1 to 19 Ledbury Place, even numbered residences between numbers 2 and 20 Aylesbury Crescent, 33 and 35 Childs Road and 2, 4, 6 and 8 Derby Crescent. It should also include commercial premises within 40m of Governor Macquarie Drive).

LETTERBOX DROP RECIPIENTS	
Street Name	Street Numbers
Ledbury Place	1 to 19
Aylesbury Crescent	2, 4, 6, 8, 10, 12, 14, 16, 18, 20
Childs Road	33, 35
Derby Crescent	2, 4, 6, 8
Governor Macquarie Drive	Commercial premises within 40m as marked on Figure 2



- 5.2 **Noise Management:** All personnel working on the job including subcontractors and their employees must be made aware of their obligations and responsibilities with regard to minimising noise emissions.

Site inductions and toolbox meetings to all employees and subcontractors must include information about the need to minimise noise impacts to surrounding areas.

Contractors should familiarise themselves with methods of controlling noisy machines and alternative construction procedures. These are explained in AS2436-1981 “Guide to Noise Control on Construction, Maintenance and Demolition Sites”.

- 5.3 **Subcontractor Management:** It is the responsibility of the main contractor to ensure that all subcontractors comply with site requirements as well as statutory requirements. No subcontractor should be allowed on site without being able to prove duty of care for the safety of their employees and bystanders with regard to noise emissions.

No subcontractor should be allowed on site without being able to provide adherence to the noise control measures that are relevant to their respective operations.

- 5.4 **Action Plan:** The main contractor should develop an Action Plan. This would be a document that will state responsibilities, actions, due dates and specific controls to be implemented.

6.6 AIR QUALITY & ENERGY

6.6.1 Existing Environment

The air quality of GMD would be as expected for a heavily congested main road within an industrial and residential setting, thus being affected by significant traffic exhaust.

As noted within the noise assessment above, sensitive receivers exist within the vicinity of the works.

6.6.2 Impact Assessment

Construction

Based on the existing environment discussed above, the construction of the proposed infrastructure has the potential to impact the air quality of residential properties through:

- **Dust Generation:** Dust can be generated by a number of construction activities including excavation; stockpiling; and vehicle movements.
- **Emissions from Construction Equipment:** Additional heavy vehicles required during construction have the potential to impact upon air quality.

The burning of fossil fuel, as required for the operation of most construction equipment, is usually a significant contributor to greenhouse gas emissions on infrastructure projects. Fuel use is likely to be the largest overall contributor to GHG emissions during the construction of this project.

- **Line marking spray:** Line marking requires the use of paint sprayed onto the road surface. In windy conditions, this can blow onto adjoining properties, vehicles, pedestrians etc.

Operation

The proposed works would increase the capacity of GMD, however would also improve its LoS. With this in mind, whilst additional vehicles may use this road, there would be less congestion and this would reduce idle exhaust emissions.

6.6.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure on air quality, the following safeguards are proposed:

- 6.1 Complaints during construction works are to be handled by the contractor. A contact name and number is to be displayed at the construction site.
- 6.2 To mitigate against the potential for dust to occur during construction, the following measures would be adopted:
- All work sites, general work areas and stockpiles will be closely monitored for dust generation and watered down (with clean water) or covered (via seeding or tarpaulins) in the event of dry and/or windy conditions;
 - Rehabilitating exposed areas as soon as possible following excavation;
 - Ensuring mud is not carried onto public roads by vehicle tyres;
 - All loads of excavated material, soil, fill and other erodible matter that are transported to or from the work site will be kept covered at all times during transportation and will remain covered until they are unloaded either for use at the work site, reuse or disposal at an OEH licensed waste disposal facility.
- 6.3 To mitigate against the potential odour concerns from construction equipment emissions, the following measures would be adopted:
- All working vehicles and construction equipment to be equipped with properly maintained exhaust systems that comply with the relevant Australian Standards;
 - Machinery and vehicles will not be left running or idling when not in use;
 - Odour or air pollutant emission complaints will be dealt with promptly and the source will be eliminated wherever practicable;
 - Proper maintenance of vehicle exhaust systems, and regular visual inspections of emissions;
 - Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or airborne particulates are likely;
 - Diesel vehicles and equipment will be turned off when not in use for a period of more than five (5) minutes, and not left idling.
- 6.4 Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or airborne particulates are likely.

6.7 NON-ABORIGINAL HERITAGE

6.7.1 Existing Environment

A search of the NSW heritage database, Commonwealth EPBC heritage list and LEP has been conducted to reveal that no European heritage items are located near the proposed infrastructure.

6.7.2 Impact Assessment

Construction

The proposed infrastructure works would have no impact on any non-Aboriginal heritage conservation areas or items.

Operation

There would be no impact on non-Aboriginal heritage during the operation of GMD.

6.7.3 Safeguards

Based on the existing environment and impact assessment of the infrastructure on Non-Aboriginal Heritage, the following precautionary safeguard is proposed:

- 7.1 If unrecorded relics are identified in the Project Area during works, then all works in the immediate area must cease and the area would be cordoned off.

Department of Planning, Industry and Environment (DPIE) and Council will be informed to determine the appropriate management strategy.

6.8 ABORIGINAL HERITAGE

6.8.1 Existing Environment

An Aboriginal Heritage Information Management System (AHIMS) search has been conducted to reveal that no Aboriginal sites or places have been declared/recorded within the area of the proposed works (refer to **Appendix 4**). Furthermore, due to the disturbed nature of the GMD road reserve, it is considered unlikely that any items would be discovered during the course of the works.

6.8.2 Impact Assessment

Construction

The proposed infrastructure works would have no impact on any Aboriginal heritage items.

Operation

There would be no impact on Aboriginal heritage during the operation of the GMD.

6.8.3 Mitigation Measures

Based on the existing environment and impact assessment of the infrastructure on Aboriginal Heritage, the following precautionary safeguards are proposed:

- 8.1 If unrecorded Aboriginal object/s are identified in the Project Area during works, then all works in the immediate area must cease and the area would be cordoned off. Department of Planning, Industry and Environment (DPIE) will be informed to determine the appropriate management strategy.
- 8.2 In the unlikely event that skeletal remains are identified, work must cease immediately in the vicinity of the remains and the area must be cordoned off. The proponent must contact the local NSW Police who would make an initial assessment as to whether the remains are part of a crime scene or possible Aboriginal remains. If the remains are thought to be Aboriginal, Department of Planning, Industry and Environment must be contacted. A Department of Planning, Industry and Environment officer would determine if the remains are Aboriginal or not; and a management plan must be developed in consultation with the relevant Aboriginal stakeholders before works recommence.

6.9 VISUAL AMENITY

6.9.1 Existing Environment

Visibility from residential properties: The works site currently presents as a congested heavy vehicle route which is readily visible by both business and residents along GMD.

Scenic Value: The works area does not have a significant scenic value.

6.9.2 Impact Assessment

Construction

Based on the existing environment, visual impacts due to construction of the proposed roadworks would be minimal given the temporary nature of the works and would relate to construction equipment and processes only.

Operation

Above ground/visible aspects of the proposed works would be minimal as the pavement width of the road would generally remain unchanged. The visual environment may however, improve through the introduction of landscaping along medians. This would provide a visual relief to road users and adjoining land owners.

Further to the above, no acoustic walls, retaining walls, areas of shotcrete, or altered lighting would be required.

6.9.3 Mitigation Measures

Based on the existing environment and impact assessment of the infrastructure on the visual environment, the following precautionary safeguards are proposed:

- 9.1 The site will be kept rubbish free at all times.
- 9.2 Temporary erosion and sediment controls would be removed from the site once landforms have been assessed as stable.
- 9.3 All disturbed areas would be rehabilitated and progressively stabilised following the completion of the works.
- 9.4 Landscaping is to be managed in accordance with Council guidelines.

6.10 TRAFFIC & ACCESS

6.10.1 Existing Environment

The existing traffic environment has been discussed at length within Section 2.

6.10.2 Impact Assessment

Construction

Based on the existing environment discussed above, the construction of the proposed infrastructure has the potential to impact on traffic and access through:

- Increased construction vehicle traffic: The construction of the proposed infrastructure has the potential to impact on traffic and transportation through increased construction vehicle movements to and from the site.
- Disruption to Private Property Access: For short periods, it is likely that vehicular access to all properties along the impacted length of GMD will be disrupted.
- Road Closures: Temporary road or lane closures would be required as part of the proposed construction process.

Operation

Full details with regards to the benefits of the proposed upgrades to the traffic environment have been provided within Section 2.

6.10.3 Mitigation Measures

Based on the existing environment and impact assessment of the infrastructure on traffic and access, the following mitigation measures are proposed:

- 10.1 Where possible, current traffic movements and property accesses are to be maintained during the workday. Any disturbance is to be minimised to prevent unnecessary traffic delays.
- 10.2 Where changes to access arrangements are necessary, Council will advise owners and tenants and consult with them in advance regarding alternate access arrangements.
- 10.3 Where works would affect the free flow of traffic, a Road Occupancy Licence would be obtained from the Road Authority and a Traffic Control Plan would be prepared in accordance with the requirements of the Roads and Maritime's Traffic Control at Worksites Manual (2018) and Australian Standard (AS1743.3 Traffic Control Devices for Projects on Roads).
- 10.4 The Contractor would prepare a Traffic Management Plan in consultation with the relevant traffic authorities prior to the commencement of construction works.
- 10.5 Appropriate signage (such as variable message signs) and supervision would be provided at all times to ensure that all work areas are controlled and that unauthorised personnel (e.g. pedestrians) are excluded from work areas.
- 10.6 Vehicle movement arrangements would be developed to limit impacts on other road users (including pedestrians, vehicles and cyclists) and the environment, with specific regard to other road works in the area, local traffic movement requirements and peak traffic volumes.
- 10.7 Appropriate pedestrian traffic controls must be set up to allow safe passage of pedestrians around the work site.

6.11 WASTE GENERATION

6.11.1 Existing Environment

Properties in the area are serviced by Council waste management services.

6.11.2 Impact Assessment

Construction

Construction works have the potential to generate waste through the following activities:

- Green waste from the removal of top soil and grasses (addressed within Section 6.2);
- Generation of hazardous waste: Generation of hazardous waste (i.e. oils, fuels, lubricants, concrete washout etc) is possible during construction, which if not disposed of appropriately, has the potential to pollute the environment;
- General waste from construction site amenities: The primary waste management objective would be to minimise waste generation where possible and encourage reuse of waste materials. Collection and disposal of waste should be undertaken progressively to lessen the impact of its presence.

Operation

The potential for generation of waste following construction of the proposed infrastructure works would be limited to waste generated from periodic maintenance.

6.11.3 Mitigation Measures

The following mitigation measures are proposed, based on the existing environment and impact assessment of the infrastructure on waste generation:

- 11.1 A Waste Management Plan shall be prepared in accordance with the Waste Avoidance and Resource Recovery Act and include:
- All waste generated during the course of the works will be reused or removed from the work areas as soon as practicable and disposed of in accordance with waste regulations;
 - Evidence of the lawful disposal or reuse of waste will be retained and provided to the Council on request;
 - All vessels used for contaminated or hazardous waste should be sealed, labelled according to their contents, and stored within bunded areas until their removal from the work site;
 - Any fuel, lubricant or hydraulic fluid spillages will be collected using absorbent material and the contaminated material disposed of at a licensed waste facility;
 - The work site(s) will be left clean and free of weeds, debris and other rubbish at the end of works;
 - All hazardous wastes on site will be removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials.
- 11.2 Any concrete washout would be established in accordance with Best Practice Guidelines (Department of Environment and Conservation's Environmental Best Practice Management Guideline for Concreting Contractors).

6.12 SOCIO-ECONOMIC SETTING

6.12.1 Existing Environment

As discussed above, properties located along the subject section of GMD include residential, commercial and industrial premises. Access to these uses is provided directly off GMD.

6.12.2 Impact Assessment

Construction

Aside from those issues discussed above, additional negative socio-economic impacts during the construction of the proposed infrastructure works are considered unlikely.

Ongoing

The amendments to GMD will generally have positive social-economic impacts through reduced crash incidents, improve safety and improve traffic efficiencies. These are discussed in full within Section 2.

6.12.3 Mitigation Measures

No additional safeguards or management measures are required beyond those discussed previously under separate environmental considerations.

6.13 CUMULATIVE IMPACTS

The proposal has the potential to have temporary cumulative environmental effects with other existing or likely future activities (other construction projects in the area), however the effects would be minimal due to the limited scope of works for the activities covered in this REF, and the potential impacts on the environment would be minimised with the implementation of the safeguards set out in Section 6.

7.0 Summary of Safeguards

In order to prevent the potential environmental issues highlighted within Section 6, the following safeguards are proposed:

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
A Construction Environmental Management Plan shall be prepared by the contractor prior to any construction occurring on site and shall include (but not limited to) the following mitigation methods:			
1. Land Uses and Services			
Disruption to surrounding residents	1.1. Notification would be given to all property owners who adjoin the infrastructure at least 14 days prior to works commencing. The notification shall include a brief description of the works and the dates and times they would be undertaken along with contact details in the case of complaints.	Prior to Construction Commencing	Contractor/Council
Avoidance of existing services/easements	1.2. A Dial Before You Dig must be undertaken prior to any works commencing in order to locate buried services. If works are to be undertaken below power lines, refer to Ausgrid Guidelines NS 209 Operating Cranes and Plant in Proximity to Power Line. If works are to be undertaken within the vicinity of Telstra pits, refer to the Network Integrity Help Desk on 1800 653 935. 1.3. Council will consult with relevant service providers during detailed design to identify possible interactions and develop procedures to be implemented to minimise the potential for service interruptions which have the potential to impact on existing land use.	Prior to Construction Commencing	Contractor
		Prior to Construction Commencing	Council
2. Soils and Geology			
Disturbance to ASS	2.1 Prior to the disturbance of ASS, an Acid Sulfate Soils Management Plan (ASSMP) should be prepared in accordance with ASSMAC guidelines.	Prior to Construction Commencing	Contractor
Disturbance to Topsoil	2.2 An Erosion and Sediment Control Plan shall be prepared including measures consistent with the requirements of Council. Such measures are to be put in place prior to the commencement of construction.	Prior to Construction Commencing	Contractor
	2.3 Where excavated soil is to be used in site restoration, it would be excavated and stockpiled in sequential layers corresponding to the existing soil profile. Topsoil and leaf litter is to be removed first and windrowed in separate		

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
	<p>stockpiles of less than 1m in height on the upslope side of excavations. Soil layers would be replaced sequentially so that the soil profile is restored as closely as possible to its pre-work status.</p> <p>The natural landform of the site(s) would be restored as closely as possible to the pre-works condition.</p> <p>Rehabilitating exposed areas as soon as possible following excavation and completed no more than 10 days after works.</p>		
3. Hydrology, Flooding & Water			
Flooding	3.1 In the event of heavy rainfall, no construction equipment, including stockpiles shall be located within flood affected portions of the site, so as to not block the passage of flood waters.	During Construction	Contractor
Fuels, Concrete wash and Chemicals	<p>3.2 All fuels, chemicals and liquids are to be stored in an impervious bunded area away from:</p> <ul style="list-style-type: none"> • Rivers, creeks or any areas of concentrated water flow; • Flooded or poorly drained areas including those identified within Figure 6.2; • Slopes above 10%; • The storage and handling of fuels and chemicals shall comply with Australian Standard AS1940; • A 'spill kit' will be kept on site at all times for potential chemical or fuel spills; • Any fuel, lubricant or hydraulic fluid spillages on land are to be collected using absorbent material and the contaminated material disposed of at an Office of Environment & Heritage licensed waste depot. <p>3.3 Potable water is to be used for wash down of vehicles and equipment.</p> <p>3.4 Water quality control measures are to be used to prevent any materials (e.g. concrete, grout, sediment etc.) entering drain inlets or waterways. Containment material is to be used to capture / filter water used in wash down.</p> <p>3.5 No concrete wash out is to be carried out on-sit</p>	Prior to Construction Commencing/ During Construction	Contractor

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
	3.6 Water required for the proposal would be obtained from an approved source (e.g. potentially including hydrants or tankers).		
4. Biodiversity			
Vegetation impacts	<p>4.1 Appropriately fence the site between the proposed works and retained vegetation.</p> <p>4.2 Tree protection fencing should be used on trees to be retained near to the works.</p> <p>4.3 Required clearing of any native vegetation on site should be undertaken in the presence of a suitably experienced ecologist to ensure any displaced native fauna can be taken into care and dealt with appropriately.</p> <p>4.4 Any landscaping to occur should utilise native, endemic species that form part of the surrounding vegetation community.</p> <p>4.5 Impacts Chytrid and Phytophthora will be managed through the adoption of site hygiene protocols.</p> <p>4.6 Establish and maintain appropriate erosion and sediment controls during both construction and operation.</p> <p>4.7 Rehabilitation should focus on stable landform shaping to facilitate regeneration of native species occurring on site where natural areas are disturbed. No exotic species are to be introduced to site with the exception of sterile cover crops (if appropriate).</p> <p>4.8 Appropriate stormwater management controls will be required to be implemented and maintained to avoid any indirect impacts to nearby watercourses.</p> <p>4.9 No machinery or material should be stored within the retained vegetation or within the dripline of retained trees.</p> <p>4.10 Effective weed control should be used on site, ensuring that appropriate methods are used to eliminate and dispose of highly competitive weeds.</p>	During Construction	Contractor

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
Spread of weeds/disease	<p>4.5 Equipment should be cleaned thoroughly and disinfected before entering and exiting site to prevent weed and disease introduction such as <i>Phytophthora cinnamomi</i> (Root-rot fungus), Myrtle Rust and others.</p> <p>4.6 Effective weed control should be used on site, ensuring that appropriate methods are used to eliminate and dispose of highly competitive weeds.</p>	During Construction	Contractor
5. Noise & Vibration			
General construction based noise and vibration	<p>5.1 Noise Planning: The letterbox drop should include, as a minimum, all receivers within the area marked in red, and (i.e., residences 1 to 19 Ledbury Place, even numbered residences between numbers 2 and 20 Aylesbury Crescent, 33 and 35 Childs Road and 2, 4, 6 and 8 Derby Crescent. It should also include commercial premises within 40m of Governor Macquarie Drive).</p> <p>5.2 Noise Management: All personnel working on the job including subcontractors and their employees must be made aware of their obligations and responsibilities with regard to minimising noise emissions.</p> <p>Site inductions and toolbox meetings to all employees and subcontractors must include information about the need to minimise noise impacts to surrounding areas.</p> <p>Contractors should familiarise themselves with methods of controlling noisy machines and alternative construction procedures. These are explained in AS2436-1981 "Guide to Noise Control on Construction, Maintenance and Demolition Sites".</p>	Prior Construction Commencing to	Contractor/Council
	<p>5.3 Subcontractor Management: It is the responsibility of the main contractor to ensure that all subcontractors comply with site requirements as well as statutory requirements. No subcontractor should be allowed on site without being able to prove duty of care for the safety of their employees and bystanders with regard to noise emissions.</p> <p>No subcontractor should be allowed on site without being able to provide adherence to the noise control measures that are relevant to their respective operations.</p>	Prior Construction Commencing/ During Construction to	Contractor

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
	5.4 Action Plan: The main contractor should develop an Action Plan. This would be a document that will state responsibilities, actions, due dates and specific controls to be implemented.		
6. Air Quality & Energy			
General Air Quality impacts	6.1 Complaints during construction works are to be handled by the contractor. A contact name and number is to be displayed at the construction site.	During Construction	Contractor
Dust, odour and overspray	<p>6.2 To mitigate against the potential for dust to occur during construction, the following measures would be adopted:</p> <ul style="list-style-type: none"> • All work sites, general work areas and stockpiles will be closely monitored for dust generation and watered down (with clean water) or covered (via seeding or tarpaulins) in the event of dry and/or windy conditions; • Rehabilitating exposed areas as soon as possible following excavation; • Ensuring mud is not carried onto public roads by vehicle tyres; • All loads of excavated material, soil, fill and other erodible matter that are transported to or from the work site will be kept covered at all times during transportation and will remain covered until they are unloaded either for use at the work site, reuse or disposal at an OEH licensed waste disposal facility. <p>6.3 To mitigate against the potential odour concerns from construction equipment emissions, the following measures would be adopted:</p> <ul style="list-style-type: none"> • All working vehicles and construction equipment to be equipped with properly maintained exhaust systems that comply with the relevant Australian Standards; • Machinery and vehicles will not be left running or idling when not in use; • Odour or air pollutant emission complaints will be dealt with promptly and the source will be eliminated wherever practicable; • Proper maintenance of vehicle exhaust systems, and regular visual inspections of emissions; • Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or airborne particulates are likely; 	Prior to Construction Commencing/ During Construction	Contractor

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
	<ul style="list-style-type: none"> Diesel vehicles and equipment will be turned off when not in use for a period of more than five minutes, and not left idling. <p>6.4 Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or airborne particulates are likely.</p>		
7. Non-Aboriginal Heritage			
Impacts on unrecorded Non-Aboriginal heritage items	7.1 If unrecorded relics are identified in the Project Area during works, then all works in the immediate area must cease and the area would be cordoned off. Department of Planning, Industry and Environment (DPIE) and Council will be informed to determine the appropriate management strategy.	During Construction	Contractor
8. Aboriginal Heritage			
Impacts on unrecorded Aboriginal heritage items	<p>8.1 If unrecorded Aboriginal object/s are identified in the Project Area during works, then all works in the immediate area must cease and the area would be cordoned off. Department of Planning, Industry and Environment (DPIE) will be informed to determine the appropriate management strategy.</p> <p>8.2 In the unlikely event that skeletal remains are identified, work must cease immediately in the vicinity of the remains and the area must be cordoned off. The proponent must contact the local NSW Police who would make an initial assessment as to whether the remains are part of a crime scene or possible Aboriginal remains. If the remains are thought to be Aboriginal, Department of Planning, Industry and Environment must be contacted. A Department of Planning, Industry and Environment officer would determine if the remains are Aboriginal or not; and a management plan must be developed in consultation with the relevant Aboriginal stakeholders before works recommence.</p>	During Construction	Contractor
9. Visual Amenity			
General visual amenity impacts	<p>9.1 The site will be kept rubbish free at all times.</p> <p>9.2 Temporary erosion and sediment controls would be removed from the site once landforms have been assessed as stable.</p> <p>9.3 All disturbed areas would be rehabilitated and progressively stabilised following the completion of the works.</p>	During Construction	Contractor

ASPECT	SAFEGUARD	TIMING	RESPONSIBILITY
	9.4 Landscaping is to be managed in accordance with Council guidelines.		
10. Traffic & Access			
Access to private properties	<p>10.1 Where possible, current traffic movements and property accesses are to be maintained during the workday. Any disturbance is to be minimised to prevent unnecessary traffic delays.</p> <p>10.2 Where changes to access arrangements are necessary, Council will advise owners and tenants and consult with them in advance regarding alternate access arrangements.</p>	Prior Construction Commencing/ During Construction to	Contractor/Council
Traffic/pedestrian impacts during construction	<p>10.3 Where works would affect the free flow of traffic, a Road Occupancy Licence would be obtained from the Road Authority and a Traffic Control Plan would be prepared in accordance with the requirements of the Roads and Maritime's Traffic Control at Worksites Manual (2018) and Australian Standard (AS1743.3 Traffic Control Devices for Projects on Roads).</p> <p>10.4 The Contractor would prepare a Traffic Management Plan in consultation with the relevant traffic authorities prior to the commencement of construction works.</p> <p>10.5 Appropriate signage (such as variable message signs) and supervision would be provided at all times to ensure that all work areas are controlled and that unauthorised personnel (e.g. pedestrians) are excluded from work areas.</p> <p>10.6 Vehicle movement arrangements would be developed to limit impacts on other road users (including pedestrians, vehicles and cyclists) and the environment, with specific regard to other road works in the area, local traffic movement requirements and peak traffic volumes.</p> <p>10.7 Appropriate pedestrian traffic controls must be set up to allow safe passage of pedestrians around the work site.</p>	Prior Construction Commencing/ During Construction to	Contractor/Council

11. Waste Generation			
Waste generation	<p>11.1 A Waste Management Plan shall be prepared in accordance with the Waste Avoidance and Resource Recovery Act and include:</p> <ul style="list-style-type: none"> • All waste generated during the course of the works will be reused or removed from the work areas as soon as practicable and disposed of in accordance with waste regulations; • Evidence of the lawful disposal or reuse of waste will be retained and provided to the Council on request; • All vessels used for contaminated or hazardous waste should be sealed, labelled according to their contents, and stored within bunded areas until their removal from the work site; • Any fuel, lubricant or hydraulic fluid spillages will be collected using absorbent material and the contaminated material disposed of at a licensed waste facility; • The work site(s) will be left clean and free of weeds, debris and other rubbish at the end of works; • All hazardous wastes on site will be removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials. <p>11.2 Any concrete washout would be established in accordance with Best Practice Guidelines (Department of Environment and Conservation's Environmental Best Practice Management Guideline for Concreting Contractors).</p>	Prior Construction Commencing/ During Construction	to Contractor

8.0 Conclusion

8.1 SUMMARY OF BENEFICIAL EFFECTS

The assessment undertaken for this REF has identified the following permanent and positive effects on the physical, biophysical and social environment through the construction and operation of the GMD upgrades:

- Reduces traffic congestion;
- Reduced traffic delays;
- Additional road capacity to meet future needs;
- Reduce crashes and improve road safety;
- Provides signalised pedestrian crossings at the GMD/Alfred Road intersection which would improve pedestrian safety;
- Provides shared paths along both sides of GMD which would include facilities for pedestrians and cyclists.

8.2 SUMMARY OF ADVERSE EFFECTS

The assessment undertaken for this REF has identified the following potential adverse effects on the physical, biophysical and social environment through the construction and operation of the GMD upgrades:

Construction

- Impact on existing land use and services;
- Impact on soil and/or water quality through erosion and sedimentation; disturbance of topsoil; potential exposure of acid sulphate soils; generation of additional pollutants;
- Impacts through potential weed/disease dispersal;
- Impact on air quality through dust generation, over-spray from line-marking paint and construction vehicle emissions;
- Increased use of fossil fuel burning construction vehicles;
- General construction related impacts on the surrounding visual catchment;
- Impact on noise and vibration amenity through construction vehicle use;
- Impact on traffic and transportation thorough increased construction vehicle movements to and from the site and potential road/lane closures;
- Impact on access to private properties;
- Additional construction based waste generation.

Ongoing Operation

- No ongoing impacts identified.

8.3 SUMMARY

The following conclusions have been derived from undertaking this REF:

- Having regard to the safeguard measures proposed, the proposed infrastructure is unlikely to significantly affect the environment and therefore Division 5.1 of the EP&A Act provides that an EIS is not considered to be warranted;
- The proposed infrastructure would not affect a declared critical habitat; would not affect threatened species, populations or ecological communities or their habitats and it is therefore considered that a SIS is not required;
- The proposed infrastructure would not affect any Commonwealth Lands and would not have any impacts on matters of NES;

- The proposed infrastructure is central to the improved efficiency and safety of the traffic environment along GMD;
- The construction of the proposed infrastructure is considered to have some minor environmental impacts as discussed within Section 6 and summarised in Section 8.2. These are either temporary in nature, inconsequential in nature or are able to be avoided through mitigation methods;
- Overall, it is concluded that the minor environmental impacts are outweighed by the significant social and economic benefits of the proposed upgrades and the flow on effects this will have to the users of GMD.

Taking the above into consideration, the REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity and has concluded that the proposal warrants support.

9.0 Declaration

This Review of Environmental Factors provides a true and fair review of the activity in relation to its likely impact on the environment. It addresses to the fullest extent possible, all of the factors listed in Section 171 of the *Environmental Planning and Assessment Regulations* (as amended) and the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (as amended).

A handwritten signature in black ink, appearing to be 'Ben Jia'.

Signed:
Name: Ben Jia
Bachelor of Urban Planning
Position: Town Planner
Date: 17/05/2023

Appendix 1

PROPOSED GMD UPGRADE WORKS



Appendix 2

SECTION 171 ASSESSMENT

Appendix 3

ECOLOGICAL ASSESSMENT REPORT

Appendix 4

ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM SEARCH

Appendix 5

CONSTRUCTION NOISE AND VIBRATION ASSESSMENT